United States and State of Indiana v. City of Fort Wayne, Indiana

Consent Decree
Appendix 1

Combined Sewer System Operational Plan

CITY OF FORT WAYNE
DIVISION OF UTILITIES

AMENDED COMBINED SEWER SYSTEM OPERATIONAL PLAN

DECEMBER 2007

CSO OPERATIONAL PLAN

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AMENDED CSO OPERATIONAL PLAN

CSSOP INTRODUCTION

This Amended Combined Sewer System Operational Plan (CSSOP) is designed to be used by the City of Fort Wayne (City), through its wastewater utility, Board of Public Works, and other departments involved in programs that affect the operations and maintenance (O&M) of the City's combined sewer system. The Chapters herein describe how the City intends to continue to implement the Nine Minimum Controls (NMCs) consistently with EPA's 1995 Combined Sewer Overflows: Guidance for Nine Minimum Controls and identifies programs to be implemented to reduce the effects of Combined Sewer Overflows (CSOs) on receiving stream water quality.

The City's CSSOP document is intended to be a "living" document in that the City intends to revise and update the CSSOP as (i) more information pertaining to receiving stream water quality, combined sewers, the collection system, and the WPCP becomes available; (ii) system revisions or modifications are made; and (iii) new facilities, equipment, or personnel are added. The City's current NPDES permit requires IDEM approval of CSSOP updates. By functioning as a "living" document, changes in regulatory requirements, administrative goals, strategies, and resources will also be incorporated into the CSSOP.

REGULATORY BACKGROUND

The Clean Water Act (CWA) prohibits the discharge of any pollutant to navigable waters of the Unites States from a point source except in accordance with a National Pollutant Discharge Elimination System (NPDES) permit. In Indiana, NPDES permits are issued an administered by IDEM. The City's NPDES permit for its Water Pollution Control Plant (WPCP) at 2601 Dwenger Avenue was issued in 2004 and is to be modified in 2007. It serves to limit the amount and concentration of conventional pollutants allowed to be discharged from the WPCP.

In April 2004 EPA published its CSO Control Policy to help communities and states control CSOs and address CWA requirements. IDEM subsequently developed a CSO control strategy of its own. Both the EPA and IDEM policy documents present the following as required actions:

1. Characterize the combined sewer system and the affected streams
2. Implement the NMCs. The NMCs are:
    - Proper operation and maintenance of the combined sewer system and the CSOs
    - Maximum use of the collection system for storage
    - Review and modify pretreatment requirements to assure CSO impacts are minimized
    - Maximum flow to the POTW for treatment
    - Prohibition of CSOs during dry weather
    - Control of solid and floatable material in CSOs
    - Pollution prevention
    - Public notification
    - Monitoring to characterize CSO impacts and the efficacy of CSO controls
3. Develop a CSO long-term control plan (LTCP)

As IDEM was developing a CSO strategy in the early 1990's, the City organized a program team for sewer/storm water master planning in preparation for compliance with future CSO regulations. The resulting 1993 Sewer Master plan made recommendations for capacity correction projects, developed the City's first computer model (SWMM) and recognized the need to develop a LTCP. In 1994, a CSO Task Force comprised of City Sewer Engineering and external consultants began implementing recommendations of the 1993 Master Plan and were the first involved in the LTCP development process. The City's first CSO Operation Plan was developed and submitted to EPA in1996 pursuant to an EPA administrative order. At the request of EPA and IDEM in 2003, the City agreed to develop and submit an updated version of its CSO operational plan. The City's efforts to do so have resulted in this CSSOP. As stated above, further updates will be accomplished as required by the City's NPDES permit for the WPCP.

DESCRIPTION OF CITY'S COMBINED SEWER SYSTEM

Combined sewer subbasins are areas of the City served by sewers designed to carry both sanitary wastewater and stormwater runoff. Roof drains, sump pumps, catch basins, and surface area drains, as well as normal wastewater connections from residential, commercial, and industrial properties can all contribute to flows within combined sewers. While the sewer system and WPCP typically are able to treat flows from combined sewers during dry weather, system capacity can be exceeded in connection with wet weather events. That is, during wet weather, the capacity of combined sewers can be exhausted by rainfall runoff. Under such circumstances, the discharge of untreated wastewater can occur to local waterways. Regulators (which are physical devices or structures designed to help control the amount of wastewater flowing into interceptors) work to relieve combined sewers of excess wastewater to avoid surcharge conditions and upstream flooding. Individual overflow events are commonly referred to as CSOs. The City currently has 43 CSO outfalls from which discharges sometimes occur to the Maumee, St. Joseph and St. Mary's Rivers and their tributaries.

The City has approximately 401 miles of combined sewers which collect and direct stormwater runoff and wastewater to various interceptors, and ultimately to the WPCP. Combined sewers, which are concentrated primarily in the older, central section of the City, represent approximately 33% of the total length of sewers within the City's public collection system. Other types of sewers used for the conveyance of raw wastewater are: sanitary sewers, which represent 58% of the total pipe length in the collection system; and interceptors, which represent approximately 9% of the total pipe length within the collection system. Sanitary sewers, designed to carry only wastewater from residential, commercial, and industrial properties, are located in areas that contain separate systems to transport stormwater runoff. Interceptors are typically a network of the larger diameter sewers (15 inches and greater) within the collection system that transport wastewater from combined sewer systems and separate sanitary sewer systems directly to the WPCP.

Nine Minimum Controls – No. 1

1.0 PROPER OPERATION AND REGULAR MAINTENANCE PROGRAMS

1.1. OVERVIEW

The title of the 1st minimum control is "Proper Operation and Regular Maintenance Programs". Operation and maintenance activities help maximize the treatment of combined sewage by utilizing CSS capabilities. This Chapter will primarily, but not exclusively, focus on maintenance activities. The operation of the collection system is discussed in more detail in Chapters 2 and 4.

The City's Water Pollution Control Maintenance (WPCM) group and its Water Pollution Control Plant (WPCP) group collectively have responsibility for the vast majority of the City's operation and maintenance activities. The WPCM O&M Plan for the CSS (Exhibit A-1) and the WPCP O&M Plan for the CSS (Exhibit A-2), provide an overview of the organization, resources, responsibilities, and operating procedures for each group.

To implement this minimum control the steps involved are: 1) assess how well the existing O&M program is being implemented, 2) determine whether or not the O&M program needs to be improved to satisfy the intent of the NMC Guidance, 3) develop and implement the improvements to address CSOs, and 4) document any actions and report them to the NPDES permitting authority as necessary. The remainder of this chapter will examine each of these steps.

1.2. IMPLEMENTATION OF THE EXISTING O&M PLAN

While the O&M plans at Exhibits A-1 and A-2 are substantial, they are not intended to contain every maintenance procedure undertaken by the City. Indeed, the WPCP alone has hundreds of procedures documented elsewhere in materials kept at the WPCP.

1.2.1 Organizational Structure

The O&M Programs for WPCM and WPCP describe the organization of the City's CSS and the organization of each group. These documents describe the lines of communication, authority, and responsibility. Since 2001, 3 Program Managers and 3 CSS inspectors have been added to the staff responsible for the operation and maintenance of the CSS.

1.2.2 Budget

Utility O&M budgets are prepared annually. The process begins with the development of program budgets by program managers and those responsible for day to day O&M activities. Program budgets are assembled to form

departmental budgets which, in turn, are assembled to form group budgets. Group budgets are assembled to form the utility's overall budget. A copy of the City's 2006 O&M budget (including WPCM and WPCP), Exhibit A-3, illustrates this process. Budgets are reviewed at least quarterly, variances are analyzed and any necessary adjustments made.

Department managers meet regularly with group managers and the utility director to review performance. The discussions during these performance reviews and the analysis of budget variances lead to goal and budget modifications. This is done to insure that performance parameters link efforts to results.

1.2.3 Critical Facilities

Section 4 of both Exhibits A-1 and A-2 list and describe the most critical components of the CSS and maintenance activities concerning them. These programs also provide information on the types and frequencies of maintenance activities performed on each component.

1.2.4 Procedures for Maintenance (Routine and Non-Routine) and Emergency Situations

The City has established routes, schedules, and procedures for maintaining (both proactively and in response to equipment failures) the most critical components of its CSS. These are discussed in the attached O&M plans. Emergency plans for a variety of possible situations are located at the WPCP. Contact information for designated staff is within those plans. Contact information for EPA, IDEM and local agencies are also provided to ensure continued proper reporting to regulatory authorities and response actions.

1.2.5 Inspections

The City has established routes, schedules, and procedures for inspecting the most critical components of its CSS. These are discussed in the attached O&M plans.

1.2.6 Training

The City has strong safety training programs. Both WPCM and WPCP have program managers in charge of training. These managers ensure that required periodic training, such as safety or certification renewal training is available to employees. They also provide some skill training such as math and some specialty training such as pump rebuilding.

1.2.7 Periodic Review of O&M Plans

WPCM and WPCP operation and maintained practices are reviewed periodically and modified. New procures are developed following the addition of new equipment and controls.

1.3. IMPLEMENTATION & IMPROVEMENTS

While the City's O&M activities have been effective in maintaining the CSS, especially given the system's size and complexity. However, like any activities, they can be improved. The City will continue to work to do so and will revise its plans following the installation of new control equipment and the identification of improved maintenance methods. .

1.4. RECORDKEEPING

Progress toward implementing this Amended CSO Operation Plan will be documented at Exhibit A-4.

DIRECTORY FOR APPENDIX A
(Items Presented in Order of Appearance in Appendix A)

Item	Description
Exhibit A-1	**WPCM O&M PLAN**
Exhibit A-2	**WPCP O&M PLAN**
Exhibit A-3	**UTILITY'S 2006 BUDGET**
Exhibit A-4	**RECORDKEEPING**

EXHIBIT A-1

WATER POLLUTION CONTROL DEPARTMENT
Of
FORT WAYNE, INDIANA

WATER POLLUTION CONTROL MAINTENANCE

OPERATION AND MAINTENANCE PLAN

JULY 2006

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1. INTRODUCTION

1.1. PURPOSE, OBJECTIVES, AND GOALS

This report is entitled an "Operation and Maintenance Plan". It describes programs and procedures currently undertaken by the Water Pollution Control Maintenance (WPCM) Department in managing the maintenance of the combined sewer collection system. The WPCM Department provides sanitary sewer and storm water maintenance services in addition to the combined sewer services described in this document.

This report is not an operation and maintenance manual. It does not provide detailed descriptions of specific operation and maintenance functions or system components. These descriptions are provided elsewhere. Rather, this report presents a functional overview of programs, equipment, and personnel in place to manage collection system maintenance on a daily basis for the Water Pollution Control (WPC) Utility.

The WPCM Department is responsible for all in-house sewer collection system related maintenance and repair functions at the WPC Utility. In addition, the WPCM Department is involved in a host of other activities including but not limited to preventive maintenance, reactive maintenance, emergency maintenance, information gathering, system monitoring, scheduling, and maintenance tracking.

Although many of these tasks can be considered preventative or reactive, others are "emergencies" and can not be anticipated. The WPCM Department is aware that the reputation of the WPC Utility in the eyes of the public depends on how it responds to these "emergencies". It should be stated that the majority of "preventative or reactive" work done by the WPCM Department is to address potential problem areas in the collection system before they become "emergencies". The Department expends a significant effort in the following work areas:

- Root and debris removal,
- Internal inspection by closed circuit television (CCTV) to detect pipe defects before they become failures.
- Grease removal
- Caller complaint investigation
- Construction activities (main and structure repair/replacement)

Although it is impractical to detail every function performed by the WPCM Department, Section 5 of this plan emphasizes 5 principal areas of responsibility:

Area	Section
"Request for Service" Procedures	5.1
Preventive Maintenance	5.2
Emergency/Reactive Maintenance	5.3
Maintenance Management System	5.4
Monitoring/Information Gathering	5.5

These topics emphasize the WPCM Department's response capabilities to perform preventive and emergency maintenance in addition to other areas such as maintenance management.

This report is intended to supplement and be consistent with emergency plans and standard operating procedures.

It is hoped that the reader will gain an appreciation of the level of commitment provided by the WPC Utility through its WPCM Department to protect human health and the environment by its programs and activities.

1.2. UPDATING AND MAINTENANCE OF THE PLAN

It is recommended that the WPC Utility update the Plan on an as-needed basis to reflect revisions to the NPDES Permit, construction of new combined sewer collection facilities, and new initiatives that are being undertaken by the WPCM Department.

2. THE WATER POLLUTION CONTROL UTILITY ORGANIZATION

The Water Pollution Control Utility is responsible for the management and operation of the City's sewage collection and treatment system. The Director of Public Works and City Utilities has primary responsibility for the administration of the entire sewage system including; design, construction, operation, maintenance, and repair of all sewers and sewage treatment facilities. The Director manages 4 groups of departments: the Water Resources Group, the Water Pollution Control Plant (WPCP) Group, the Water Pollution Control Maintenance (WPCM) Department, and the Utility Administration (UTA) Group.

The Water Resources Group is responsible for the planning and administration of capital projects, service extension permits, and maintaining all sewer maps. The Water Resources Group is also responsible for planning, evaluating, and development of projects; development, management, and implementation of the capital improvement program; acquisition of easements and property; and project management from conception through design, construction, completion, and acceptance of the project with the goal of project completion on time and within budget.

The Water Pollution Control Plant Group has the responsibility for operating and maintaining the wastewater treatment plant, the package treatment plant, mechanical regulators, and pumping stations. They are also responsible for regulating industrial waste discharges, pretreatment programs, sampling, analytical laboratory operation, and CSO treatment facilities.

The Water Pollution Control Maintenance Department is responsible for inspection, cleaning, and repair and replacement of all sewers, combined sewer outlets and appurtenances. They also provide CSO and SSO monitoring services.

The Utility Administrative Group is responsible for accounting, budgeting, and customer service. They also take the lead in the preparation of rules, regulations, and legislation required to operate the Utility.

3. THE WATER POLLUTION CONTROL MAINTENANCE DEPARTMENT

3.1. ORGANIZATIONAL DESCRIPTION

The Water Pollution Control Maintenance (WCPM) Department is responsible for the inspection, cleaning, and repair and replacement of the wastewater collection system, which includes all combined sewers, separate sanitary sewers, combined sewer regulators and appurtenances. A organizational chart is presented in Figure 3-1. The WPCM Department is organized into 5 functional areas illustrated in Figure 3-2 and introduced below.

Area	**Primary Function(s)**
1. Maintenance	* Inspections * Cleaning
2. Construction	* Repairs & Replacements
3. CSO Program	* Monitoring CSOs
4. Administrative	* Dispatching * Investigations * Storeroom/Yard Inventory * Budget Development
5. Training	* Training

The purpose of the above listing is to highlight primary functions of the 5 areas. These designations reflect normal day-to-day operations. As can be seen, much of the work done by the WPCM Department relates to information gathering, scheduling, coordination and preventive maintenance. A brief description of each area is below.

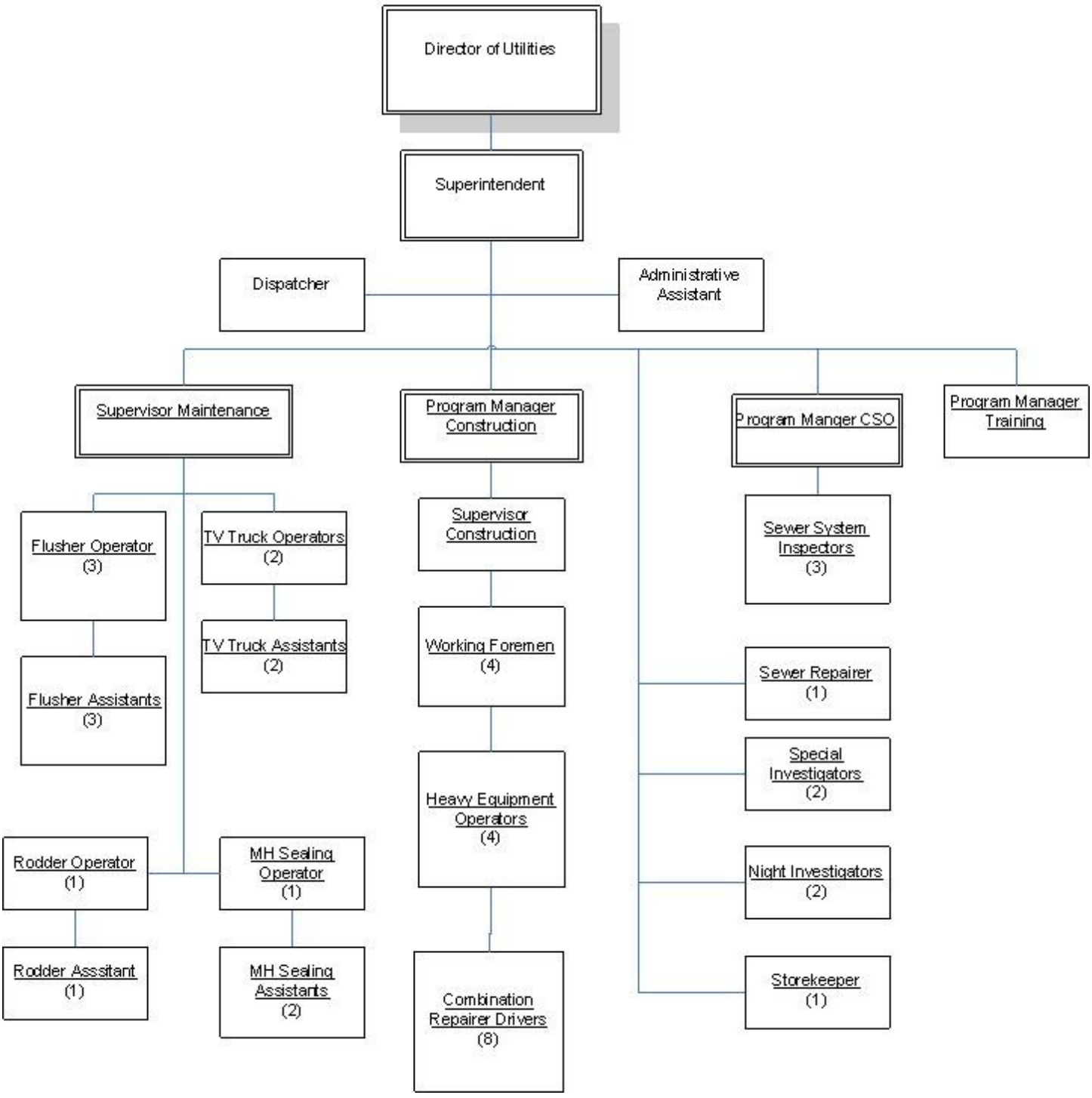
Maintenance: Reactive TV inspection and cleaning as requested by the investigators, other areas of the group, or work requested by other groups of the Water Pollution Control (WPC) Utility are performed in this area. Inspecting and cleaning combined sewers, interceptors and control structures are also done in this area. Details on inspecting and cleaning these sewers may be found in Section 6.

Work related to scheduled preventive maintenance TV inspection and sewer cleaning operations is also done in this area. This area is responsible for overseeing the scheduling of inspections and cleaning for the group.

Construction: The Construction Area teams perform minor to moderately-sized repairs and replacements on various elements of the collection systems.

CSO Program: The CSO Program Area teams collect CSO flow and rain data from flow meters and the rain gage network and prepare required regulatory reports. They also install flow meters and help maintain the meters.

Figure 3-1
WPCM Organizational Chart



Administrative: The dispatcher in this area is the first line of contact with the public. The dispatcher processes reports once the investigators are done with a call. All records are maintained in an organized manner and available to WPC Utility personnel.

Dispatchers collect information over the telephone in a calm, friendly and professional manner. This task may be complicated by the fact that the person calling may be upset, confused or unknowledgeable about the problem being experienced. During normal working hours, the dispatcher works out of the complex at 515 E. Wallace Street. During evenings the night investigators perform the tasks of the dispatcher and work out of the complex at 515 E. Wallace Street. During late night, calls are routed to the night investigators via a pager/call back system. Night investigators in turn investigate complaints or notify "on-call" supervisors if the reported problem warrants additional evaluation or supervision.

The dispatcher is important to the group in that he/she schedules and coordinates "work order" projects based on information collected from investigators. The dispatcher provides an important interface with recommendations made from a "complaint" or "Request for Service" response call once the immediate problem has been addressed. For example, if the recommendation from a "complaint" or "Request for Service" response call is to clean or TV inspect sections of sewer line, he creates a work order and schedules the project.

Administrative support to the WPCM Group and storeroom services are also provided by this area.

Training: This area is responsible for planning, developing, and implementing the training and safety programs for the department.

With the exception of the Administrative Area, each of the functional areas includes a Supervisor or a Program Manager to report to the Superintendent. The Administrative Area is supervised by the Superintendent.

Supervisors or Program Managers hold positions of supervisory authority under the Superintendent and are senior operations staff. Supervisors or program Managers work with the crews to resolve sewer maintenance problems and serve as a liaison between the crews and the superintendent. During normal working hours, there are a number of supervisors who can handle problems as they arise. During evenings and weekends, problems are referred to the "Supervisor on Call". Supervisors on Call are changed on a rotating basis once every week.

The Superintendent is in charge of the WPCM Department and reports to the Director. Although the Superintendent will normally not be personally involved in most service calls, he/she is administratively responsible for activities performed by the Department,

including all fiscal and budgetary matters and coordination with the Director's office. The Superintendent also is a valuable technical resource who is knowledgeable in the design, construction and maintenance of collection systems and is therefore, frequently involved in devising strategies and directing actions to solve the most complicated problems.

In no way does this completely describe all work done by these areas nor reveal how they interact with each other. As will be seen in Section 5 under the "Request for Service" procedures, all groups interact and coordinate to resolve sewer related problems that arise. Although personnel assigned to each group generally perform functions of that particular group, there is a substantial overlap that occurs in solving sewer problems. Most personnel are trained to perform multiple tasks and can be assigned to other groups on a temporary or permanent basis, if necessary.

3.2. FACILITY AND EQUIPMENT DESCRIPTION

3.2.1. Physical Facility

The WPCM Department operates out of a complex at 515 E. Wallace Street. The facility is centrally located within the service area which provides crews timely response to collection system problems.

Besides providing offices and conference space for technical and support personnel, the complex also features large enclosed vehicle and equipment parking, storage areas, and material storage areas both under roof and in yard areas around the complex.

3.2.2. Equipment

The WPCM Department owns and has ready access to a sizable arsenal of equipment to perform sewer maintenance and repair work for nearly every foreseeable situation. Equipment was purchased based on the needs of the WPC Utility's collection system including difficult to access areas. As such, the WPCM Group owns a wide array of equipment. The equipment currently owned is set forth in Appendix A.

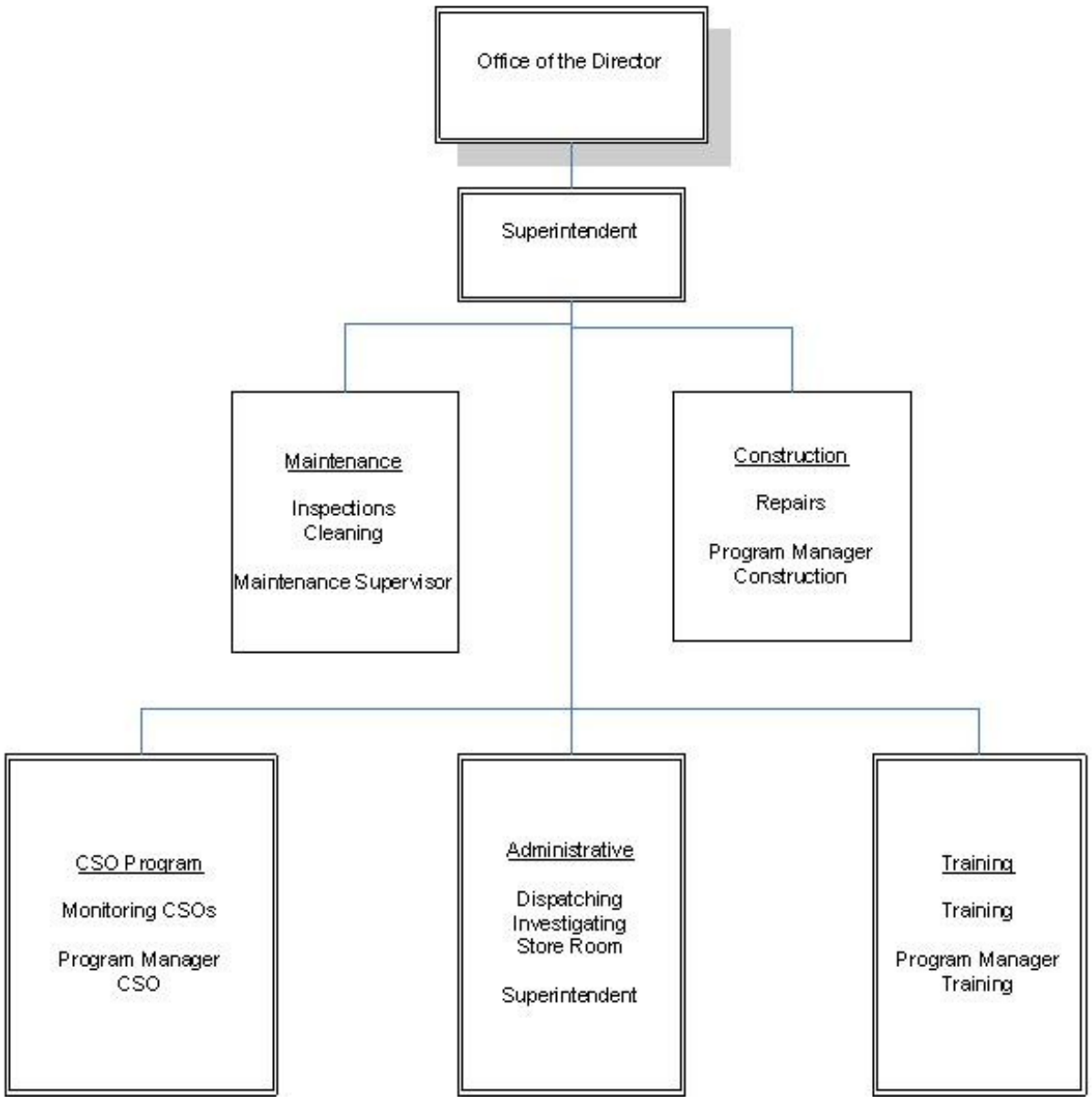
3.3. IMS/GIS

The WPCM Department uses an electronic database to track maintenance activities. The database is called the Infrastructure Management
System (IMS). Complaints are logged into this system, work orders are created by the system, and the data is linked to the City's Geographic-Information System (GIS) by structure identification numbers or street address.

The City's GIS is a mapping system which includes natural features (rivers, topography, land use), utility information (sewers, manholes, water mains), property information (property lines, right-of-way lines, addresses, and street segments). The City Utility's GIS Department operates and maintains both the IMS and GIS as they relate to City Utility infrastructure.

Figure 3-2

Functional Areas of WPCM



4. SEWER SYSTEM DESCRIPTION

The Water Pollution Control (WPC) Utility is a municipal sewer operation that has been providing sewer services to the City of Fort Wayne since shortly after the Civil War. The WPC Utility services most of the incorporated areas of the City of Fort Wayne and areas adjacent to the City. Aqua Indiana, a private utility, serves large areas of western and northern Fort Wayne and Allen County. Several communities in Allen County and the Allen County Regional Water and Sewer District operate their own collection systems and transport their sewage to Fort Wayne for treatment. There are large portions of the County that are not sewered.

Figure 4-1 is a large scale map of the WPC Utility's collection system.

The collection system contains (as of July 2006):

- 892 miles of sanitary sewers
- 347 miles of combined sewers
- 427 miles of storm sewers
- 49 lift stations
- 4,957 catch basins
- 12,449 inlets
- 33,576 manholes
- 1 central treatment plant
- 1 package treatment plant

The collection system serves over 80,000 customers.

4.1. COMBINED SEWER SYSTEM COMPONENTS

4.1.1. Sewers and Manholes

4.1.1.1. Capacity

Sewer capacity is measured by multiplying the velocity of flow by the cross sectional area of flow. The design velocity should be 2ft/sec or greater to keep solids in the sewage suspended in the liquid for transportation to the treatment plant.

Gravity sewers are usually designed to carry sewage at a velocity of 2ft/sec when flowing just full. Force mains are usually designed to carry sewage at velocities between 2ft/sec and 8ft/sec.

Manholes should be designed and constructed so they do not create turbulence in the flow that is transported through them. Turbulence can be created by rapid expansion or contraction of channel width or elevation. If channeled properly they will have the same capacity as that of the pipes connected to them.

4.1.1.2. Causes of Poor Performance

4.1.1.2.1. Stoppages

Fats, oils, grease, rags, sticks, gravel, mud, silt and tree roots cause stoppages when they accumulate in a sewer or manhole. When sewer users dump excessive amounts of fats, oils, and grease down a drain it collects on the walls of sewers, hardens, and creates stoppages. Rags can be flushed down a toilet. They can become snagged on sharp protrusions or other obstructions and contribute to stoppages. Sticks, gravel, and mud can enter a sewer through an open manhole or storm water collection point and form dams or snags for other debris. Roots and silt can enter sewers through cracks or unsealed joints. Roots seek sewage as a source of water and nutrients. As they grow they create stoppages and cause additional damage to the pipe. Silt can collect in sharp bend or flats sections of sewer where the velocity decreases and the solids settle out of the liquid creating deposits and eventually stoppages.

4.1.1.2.2. Collapse

Collapsed sewers are encountered frequently in sewer sewage collection systems. These failures may result from any one of several causes. Common causes of collapse are discussed below.

4.1.1.2.2.1. Improper Pipe Bedding

Where the sewer pipe is laid in a trench that has a rock bottom, or where it is laid in a trench where rock protrudes, the sewer will fail because of a lack of uniform bearing unless proper bedding is provided. A concentrated load will develop and the pressure, instead of being uniformly supported by the entire pipe, will be exerted at the single point of contact between pipe and rock.

4.1.1.2.2.2.Failure Due to Live Loads

Pipe laid with insufficient cover may be broken by a surface load imposed on it by traffic or by some piece of construction equipment such as a grader or a heavy tractor. It is desirable to have a minimum of 3 feet of cover over the sewer.

4.1.1.2.2.3.Failure Due to Earth Movement

Sewers can be damaged by earth movement caused by frost-heaving or shifting dirt. Sewers should be constructed below the frost line. Proper shoring techniques can provide protection to existing sewer lines from cave-ins.

4.1.1.2.2.4. Root-Growth Damage

Roots can enter a sewer through small cracks or joints that are not properly sealed. As the root grows it can displace or crush a pipe.

4.1.1.2.2.5. Failure due to Improper Jointing

If a joint is not made correctly during construction a cave-in eventually occurs as the surrounding soil is washed away. When a hole is knocked into a pipe to make a lateral connection, the lateral pipe can protrude into the main sewer and cause a stoppage as well as form a bad joint and/or cause a cave-in.

4.1.1.2.3. Infiltration

Sewers that are not water tight allow ground water and rain induced flows in the sewer's bedding to enter the sewer and use up capacity that could be used by sewage. The same things that cause collapse allow infiltration.

4.1.1.2.4. Odor

Gasses that smell bad are created when sewage is decomposed into basic compounds by particular types of bacteria. This can create an odor problem in the collection system when this type of decomposition occurs in the collection system and when the gas created by this process if released from sewage during turbulence.

4.1.1.3. List of Components

There are over 347 miles of sewers in the combined sewage collection system. That translates into roughly 6,400 sewer segments. All segments are mapped in GIS and have individual SIP #, but it would not be practical to list all those segments here. However, there

are many characteristics of a sewer segment that make it more critical than other segments. The failure of a large sewer creates bigger problems than the failure of a smaller sewer. Overflows are particularly sensitive to those segments that carry flow to the treatment plant and are just downstream of regulators. Inverted siphons require frequent maintenance as do sewers that are laid on a flat grade. Sewers that are subject to exceptional loading can have frequent problems.

4.1.2. Diversion Structures

4.1.2.1. Capacity

Diversion structures, at a minimum, should be able to direct peak dry weather flows to the WPCP for treatment.

4.1.2.2. Causes of Poor Performance

The diversion structure opening that allows flow to go to the Publicly Owned Treatment Works (POTW) is usually much smaller that the opening that allows flow to enter the diversion structure. Large pieces of debris can enter the structure through the large opening but become lodged in the smaller opening causing a blockage and overflows to the receiving waters.

4.1.2.3. List of Components

The diversion structures are listed in Structure Inventory Program (SIP)# order in Table 4-1. Structure type, diversion method, and whether or not there is a regulator associated with this diversion structure are indicated in the table. The subbasin where the diversion structure is located and its discharge point's SIP# and permit # are also provided for cross reference.

4.1.3. Discharge Points

4.1.3.1. Capacity

The capacity of a discharge point is dependent upon the receiving water's stage. When the receiving water is up and covering the discharge point nothing can flow into the receiving water until the water level in the discharge pipe rises above the receiving water level. This can cause basement backups or sewer overflows in streets

or yards in some situations. When this is a possibility pumps should be utilized to discharge overflows into the receiving waters.

4.1.3.2. Causes of Poor Performance

Erosion damage to structures, improper adjustment of tide gates, and debris preventing tide gates from closing tightly are the most common causes of poor performance.

4.1.3.3. List of Components

The discharge points are listed in SIP# order in Table 4-2. Information on size, presence of a headwall, tide gate type if applicable, and sluice gate normal position if applicable are indicated in the table. The subbasin where the discharge point is located, associated upstream diversion structure(s) (regulator(s)), and discharge point's permit # are also provided for cross reference.

4.1.4. Catch basins

4.1.4.1 Capacity

The capacity of a catch basin is dependent on the grate on top of the structure that allows storm water into the structure and the elbow and discharge pipe leading from the structure to the sewer.

4.1.4.2. Causes of Poor Performance

The most common causes of poor performance of a catch basin are a plugged inlet grate or debris and sediment in bottom of structure causing elbow to be partially plugged.

4.1.4.3. List of Components

There are 4,957 catch basins in the combined sewage collection system. Every catch basin is mapped in GIS and have individual SIP #'s, but it would not be practical to list all those segments here.

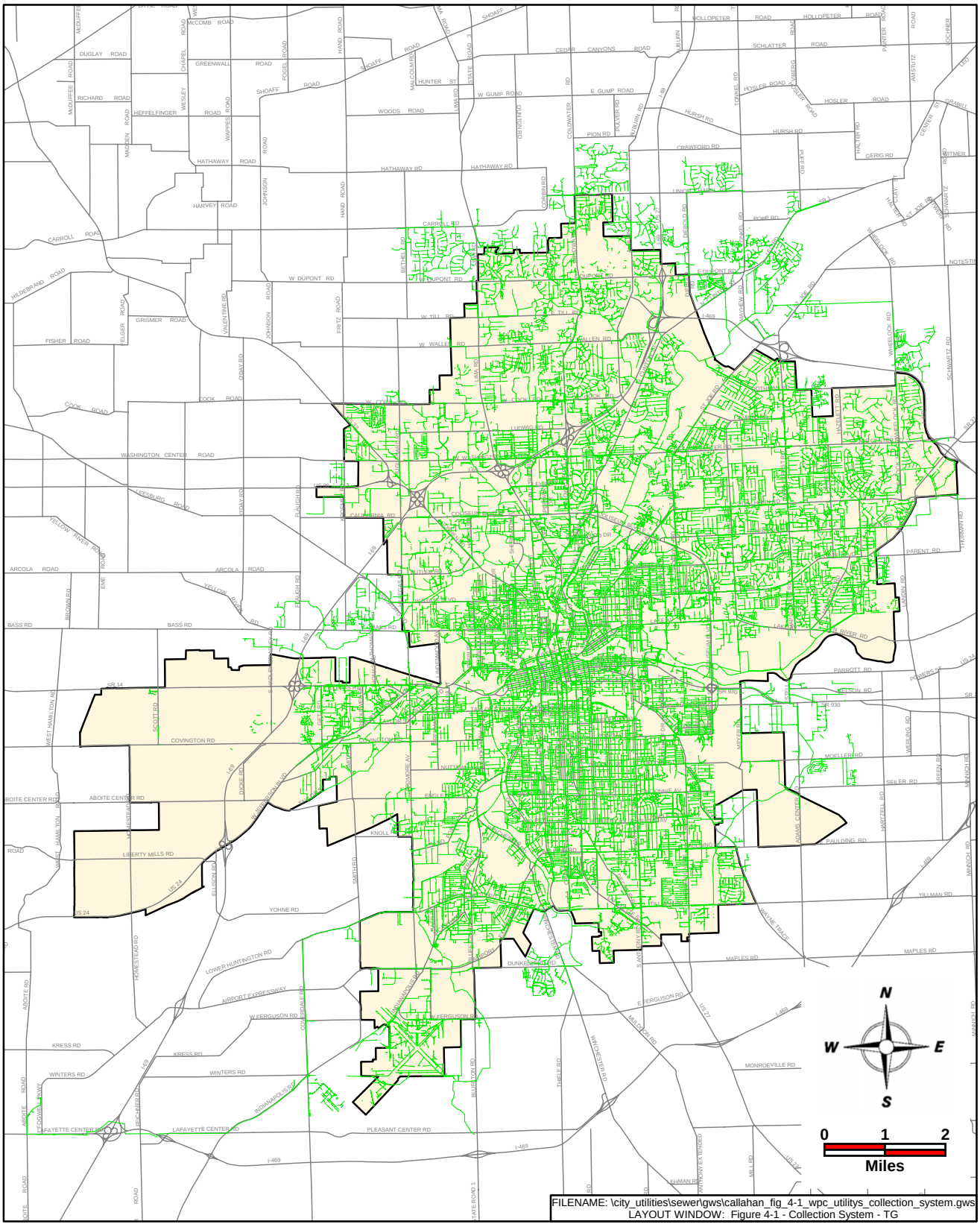


FIGURE 4-1
WPC UTILITY'S COLLECTION SYSTEM

Table 4-1

DIVERSION STRUCTURE LIST
July 2006

Structure SIP #	Structure Type	Diversion Method	Associated Regulator	Subbasin	Discharge Point SIP#	Discharge Point Permit #
J02-089	RS	D	YES	J02-089	J02-090	004
J03-267	RS	OP,SW	YES	J03-012	J03-313 & K03-092	056 &007
J11-163	BT&D	D	YES	K11-004	J11-164	005
K06-231	BT&D	D	YES	K06-290B	K06-233 & K06-234	011 &012
K06-275	RS	OP	YES	K06-290B	K06-298	013
K06-285	RS	D	YES	K06-290A	K06-298	013
K07-006	MH	OP	NO	K07-026	K07-109	016
K07-101	MH	OP	NO	K06-026	K07-106	014
K07-115	MH	OP	NO	K07-026	K07-106	014
K07-171	BT&D	D	YES	K07-026	K07-176	017
K11-162	BT&D	D	YES	K11-010	K11-178	019
K11-163	BT&D	D	YES	K11-010	K11-165	018
K15-009	BT&D	D	YES	K15-009	K15-116	020
K15-110	RS	DC	YES	K15-112	K19-077	067
L06-086	BT&D	D	NO	L06-086	L06-421	025
L06-088	BT&D	D	NO	L06-087	L06-420	024
L06-102	CB	DC	NO	L06-078	L06-103	023
L19-018	RS	D	YES	L19-252	K19-018	021
M06-706	BT&D	D	NO	M06-719	M10-306	032
M10-150	RS	D	YES	M10-120	M10-151	026
M10-198	BT&D	D	NO	M10-120	M10-202 & M10-313	027 & 033
M10-199	BT&D	D	NO	M10-120	M10-202 & M10-313	027 & 033
M10-256	BT&D	D	NO	M10-250	M10-265	029
M10-279	CB	SW	NO	M10-237	M10-238	028
M10-309	BT&D	D	NO	M06-044	M10-265	029
M18-256	RS	D	YES	M18-256	M18-032	036
N06-007	RS	D	YES	N06-007	N06-022	039
N18-241	MH	OP	NO	N22-005	N18-254	068
N22-092	RS	DC	YES	M18-261	N22-093	044
N22-101	MH	DC	NO	M18-261	N22-103	045
O10-273	CB	SW	NO	O06-017	O10-277	050
O10-311	CB	SW	NO	O10-101	O10-252	048
O19-009	RS	D	YES	N23-078	O23-080	054
O22-045	MH	D	NO	O22-092	O22-002	051
O22-095	MH	SW	NO	O22-092	O22-094	053

Table 4-1

P06-014	RS	D	YES	P06-014	P10-121 & Pond 2	057 & 002
P06-119	RS	D	YES	P06-119	P06-192	055
P18-089	MH	OP	NO	O10-101	P10-001	080*
P18-150	MH	OP	NO	O10-101	P10-001	080*
P18-155	MH	OP	NO	O10-101	P10-001	080*
P22-001	CB	SW	NO	O22-061B	O22-004	052
P22-139	MH	D	NO	O22-061B	O22-004	052
Q03-011	CB	SP	NO	Q06-022	S02-035	064
Q06-036	MH	DC	NO	Q06-049	Q06-034	058
Q06-057	CB	OP	NO	Wayne St. Interceptor	P10-121 & Pond 2	057 & 002
Q07-022	CB	SP	NO	Q06-022	S02-035	064
R06-030	BT&D	D	NO	Q06-002	R06-031	060
R18-188	RS	D	YES	R14-075	R14-138	062
S18-070	CB	OP	NO	R14-033	R14-032	081*
S18-071	CB	OP	NO	R14-033	R14-032	081*
S18-082	MH	D	NO	R14-033	R14-137	061*

**assumed number, to be determined/verified upon proposed NPDES permit modification*

Structure Type Legend

- BT&D – Blind Tap & Dam
- CB – Concrete Box
- MH - Manhole
- RS – Regulator Structure

Diversion Method Legend

- D - Dam
- DC – Depressed Channel
- OP – Overflow Pipe
- SP – Split Pipe
- SW – Side Weir

Table 4-2
Discharge Points
Jul-06

SIP#	PERMIT #	SUBBASIN	UPSTREAM REGULATOR(s)	HEADWALL	SIZE	TIDE GATE	TYPE	SLUICE GATE	NORMAL POSITION
J02-090	4	J02-089	J02-089	yes	24"	yes	duckbill	no	
J03-313	56	J03-012	J03-267	yes	2-36"	yes	flap	no	
J11-164	5	K11-004	J11-163	yes	66"	yes	flap	no	
K03-092	7	J03-012	J03-267	yes	60"	yes	flap	yes	closed
K06-233	11	K06-290B	K06-231	yes	72"	yes	flap	yes	closed
K06-234	12	K06-290B	K06-231	yes	2-36"	yes	flap	yes	open
K06-298	13	L06-290A&290B	K06-275&285	yes	72"	yes	flap	no	
K07-106	14	K07-026	K07-101&115	no	12"	no		no	
K07-109	16	K07-026	K07-006	no	15"	no		no	
K07-176	17	K07-026	K07-176	yes	42"	yes	flap	no	
K11-165	18	K11-010	K11-163	yes	126"	yes	flap	no	
K11-178	19	K11-010	K11-178	yes	42"	yes	flap	no	
K15-116	20	K15-009	K15-009	yes	6'x6'	yes near regulator	flap	no	
K19-044	21	L19-252	L19-018	yes	66"	yes	flap	no	
K19-077	67	K15-112	K15-110	yes	24"	yes	flap	no	
L06-103	23	L06-078	L06-102	yes	48"	yes	flap	no	
L06-420	24	L06-087	L06-088	yes	72"	yes	flap	no	
L06-421	25	L06-086	L06-086	yes	60"	yes	flap	no	
M10-151	26	M10-120	M10-150	yes	4-6'x6'	yes	flap	yes (2)	open
M10-202	27	M10-120	M10-199	yes	72"	yes	flap	yes	closed
M10-238	28	M10-237	M10-279	yes	30"	yes	flap	yes	open
M10-265	29	M10-250&M06-044	M10-256&309	yes	48"	no		yes	open
M10-306	32	M06-711	M06-706	yes	60"	?		no	
M10-313	33	M10-120	M10-199	yes	4-42"	yes	flap	no	
M18-032	36	M18-256	M18-256	yes	24"	yes	flap	no	
N06-022	39	N06-007	N06-007	yes	60"	no		no	
N18-254	68	N22-005	N18-241	yes	36"	yes	flap	yes	open
N22-093	44	M18-261	N22-092	yes	12"	yes	flap	no	
N22-103	45	M18-261	N22-101	yes	12"	yes	flap	no	
O10-252	48	O10-101	O10-311	yes	5-30"	no			
O10-277	50	O06-017	O10-273	yes	36"	yes	flap	no	
O22-002	51	O22-092	O22-045	yes	42"	yes	flap	yes	open
O22-004	52	O22-061B	P22-139&001	yes	48"	yes	flap	no	
O22-094	53	O22-092	O22-095	yes	18"	yes	duckbill	yes	open
O23-080	54	N23-078	O19-009	yes	48"	no		no	
P06-192	55	P06-119	P06-119	yes	48"	yes	flap	no	
P10-001	80*	O10-101	P18-089,150,&155	yes	72"	yes	duckbill	yes	open
P10-121	57	P06-014&Wayne	P06-014&Q06-057	yes	3-7'x7'	yes	flap	no	
Q06-034	58	Q06-049	Q06-036	yes	24"	yes near regulator	flap	no	
R06-031	60	Q06-002	R06-030	yes	42"	yes	flap	no	
R14-032	81*	R14-033	S18-070&071	yes	54"	no		no	
R14-137	61	R14-033	S18-082	yes	42"	no		no	
R14-138	62	R14-075	R18-188	yes	60"	yes	flap	no	
S02-035	64	Q06-022	Q07-022&Q03-011	yes	102"	no		no	

**assumed number, to be determined/verified upon proposed NPDES permit modification*

5. OPERATION AND MAINTENANCE PROGRAM

As is seen from the discussion in Section 3, the WPCM Department is involved in a number of wide-ranging activities including but not limited to preventive maintenance, reactive maintenance, emergency maintenance, information gathering, system monitoring, scheduling, and data and project tracking.

For purpose of clarity, it should be stated that the discussion presented in Section 3 emphasizes activities generally considered to be preventative or reactive. The following topics emphasize other aspects of the WPCM Department's response capabilities for preventive and emergency maintenance, the Department's maintenance management system, and other monitoring and information gathering activities.

Area	Section
"Request for Service" Procedures	5.1
Preventive Maintenance	5.2
Emergency/Reactive Maintenance	5.3
Maintenance Management System	5.4
Monitoring/Information Gathering	5.5

This plan will be subject to modification by the Director of the WPC Utility to account for changes in circumstances such as changes in the configuration of WPC Utility facilities, the purchase of new equipment, changes in regulatory requirements, the development of new technologies, or changes in industrial standards/best management practices.

5.1. "REQUEST FOR SERVICE" PROCEDURE

"Request for Service" or "Complaint" calls are those initiated by the public in response to sewer related problems. Typically those may include water-in-basement complaints, or reports of sewage in streets. In many instances these calls end up being false alarms in that no real problem is occurring and the caller only perceived that a problem was occurring. In other instances, WPC Utility finds that the "problem" is due to problems with building service lines (e.g. building service laterals) on private property or a privately owned sewer line.

Although not all "Request for Service" or "complaint" calls are bonafide emergencies, all require a prompt response. The "Request for Service" procedures outlined here provide insight into the coordinated efforts of all members of the WPCM Department and how they work together as an integrated team.

"Request for Service" calls also provide the WPCM Department with valuable information. For example, a sewer line may need frequent root removal. In this manner, this particular line may be added to the pool of root removal project sites and scheduled

in the future as "preventive maintenance" rather than "emergency or reactive maintenance."

The process utilized by WPC Utility to respond to "Request for Service" or "complaint" calls is defined in the Process Flowchart shown in Figure 5-1. This procedure includes all calls received at WPC Utility, regardless of whether a sewer overflow has occurred.

Each step of the flow chart is described below.

Step 1 – Dispatcher Receives Telephone Call

Request for service calls are received by the Dispatcher at the 427-1255. Dispatchers are trained to elicit information on the exact nature and magnitude of the problem, including whether the sewer problem is on private property or in the WPC Utility owned main-line sewer.

Step 2 – Dispatcher Logs Basic Information in Log Book

At this time, the Dispatcher manually logs key information into the "Log Book". Information to be obtained is as follows:

- Name of the person calling,
- Phone number of the person calling,
- Date and time the call was received,
- Location of the problem, and
- Type of problem.

A reproduction of a page from the Log Book is attached as Appendix "B".

Step 2A – Dispatcher Creates a Work Order for the Investigation

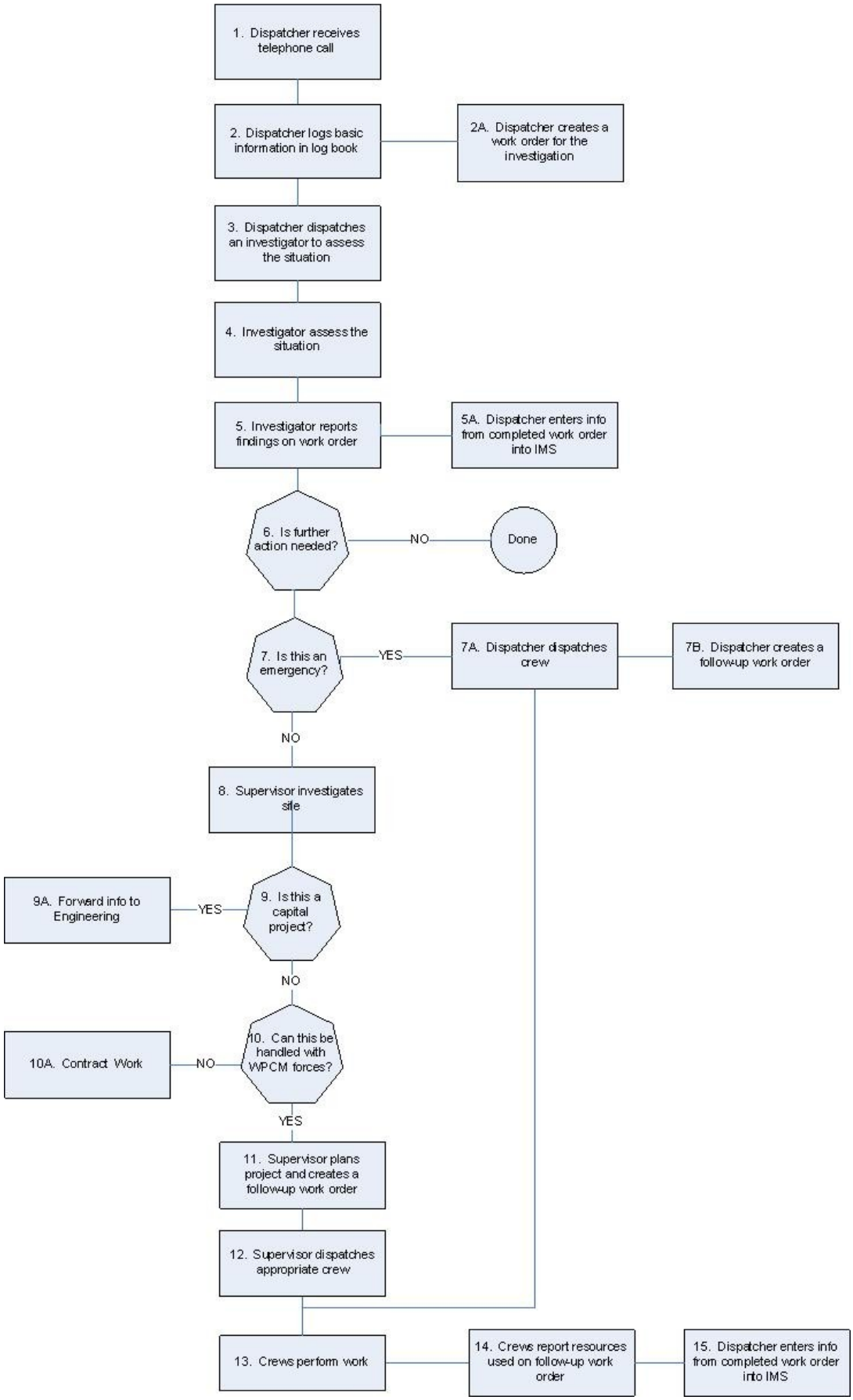
The Dispatcher enters the information from the "Log Book" into the IMS database and prints a work order. A reproduction of the "Work Order Entry Screen" is attached as Appendix "C".

Step 3 – Dispatcher Dispatches an Investigator to Assess the Situation

The Dispatcher pages Investigators by radio to respond to the service call. An Investigator has a pickup truck containing some hand tools and a few barricades.

Step 4 – Investigator Assesses the Situation

Figure 5-1
"Request For Service"
Process Flow Chart



During this step, the investigator arrives on site and locates the problem. If needed, the investigator places the initial barricades. The investigator then attempts to determine the cause of the problem.

Step 5 – Investigator Adds Findings to Work Order

The findings are reported to the Dispatcher. When the investigator returns to the office he adds the findings to a hard copy of the investigation work order.

Step 5A – Dispatcher Enters the Information from the Completed Work Order into IMS

Step 6 – Is Further Action Required?

At this point the Investigator has assessed the situation and reported to the Dispatcher if further action is needed.

Step 7 – Is This an Emergency Situation?

In addition to reporting the need for additional action to the Dispatcher the Investigator has indicated if emergency action is required or if routine action is required.

Step 7A – Dispatcher Dispatches Crew.

If emergency action is required the dispatcher dispatches an appropriate crew. If the situation merits discussion with a supervisor the appropriate supervisor is contacted.

Step 7B – Dispatcher Creates a Follow-up Work Order.

The Dispatcher enters the dispatch information in the IMS database and prints a work order.

Step 8 – Supervisor Investigates Site.

The supervisor determines site conditions and crew requirements.

Step 9 – Is This a Capital Project?

The supervisor determines if this could be included in a current capital project. If it could be a capital project the Supervisor checks with Engineering.

Step 9A – Forward Site Information to Engineering.

If it is determined that the work is or should be part of a capital project the Supervisor should forward all inform he has to Engineering.

Step 10 – Can This Work Be Handled With WPCM Forces?

The Supervisor determines if WPCM Group has the required resources to perform the required work.

Step 10A – Contract Work.

If the Supervisor determines that the WPCM Group does not have the required resources he solicits bids from contractors.

Step 11 – Supervisor Plans Project and Creates a Follow-up Work Order.

The Supervisor obtains the required locates, permits, traffic plans, and notifications. Then the Supervisor finishes the follow-up work order that provides the appropriate crew with the information that they need to complete the required tasks.

Step 12 – Supervisor Dispatches Crew.

The supervisor gives the appropriate crew the follow-up work order and sends them to the site.

Step 13 – Crews Perform Work.

Step 14 – Crews Report Resources Used On Follow-up Work Order.

Crews record labor hours, equipment hours, and material used on the hard copy of the follow-up work order.

Step 15 – Dispatcher Enters Information From the Completed Work Order Into the IMS.

5.2. PREVENTIVE MAINTENANCE

The previous section outlines "Request for Service" procedures utilized by the WPCM Department. Although the WPCM Department recognizes that some emergencies are inevitable, the Department places a premium on preventive maintenance to minimize the occurrence of future "emergencies."

Many of the programs administered by the WPCM Department were introduced in Section 3 along with a discussion as to which functional area was in principal charge. Although many of the Department's specific procedures relating to preventive maintenance are outlined in the Section 6**,** the Department relies on the use of CCTV to provide information that drives the subsequent maintenance activities. In part information obtained from CCTV is entered into the televising database described in Section 5.4.

For purpose of preventive maintenance the WPCM Department generally selects lines to be CCTV inspected on the following basis:

- Sewers located in areas of reported basement flooding
- Sewers located in areas of repeated requests for service
- Sewers located in areas of planned public improvements

Information gained from CCTV work is entered into the database described in Section 5.4. This database assists the WPCM Department in deciding which lines need additional maintenance and repair, what type of action is appropriate, and when this work may be required.

Based on the findings obtained from CCTV, the WPCM Department may perform one or more of the following activities:

- Perform additional line cleaning/root removal
- Perform minor repairs
- Recommend a Capital Improvement Project

Each of these activities is described further below:

Perform Additional Root Removal and Sewer Cleaning

In many instances the WPCM Department will discover that the available capacity in a sewer line may be reduced by the presence of roots, grease, grit material and other debris. By removing these obstructions, the available capacity in a line can be effectively restored.

Perform Minor Repairs

In other instances, CCTV inspection work will reveal situations where a minor or moderate repair is warranted. Typical repairs performed by the WPCM Department include point repairs on main line sewers, manholes, or force mains.

Recommend a Capital Improvement Project

In other instances the WPCM Department will work with other divisions in WPC Utility to formulate a capital improvement project.

Annual Preventive Maintenance Target Goals

Wastewater Collection System Gravity Sewer Information:

1,539 miles (total) of combined and sanitary sewers

The WPCM Department is presently implementing a Preventive Maintenance Program for Sewer Cleaning and CCTV Inspection.

Targeted yearly production rates for this program currently are:

- Degrease 520,000 linear feet of sewer pipe per year
- De-root 210,000 linear feet of sewer pipe per year
- Clean 5,600 catch basin and inlet structures per year
- Televise 135,000 linear feet of sewer pipe per year
- Clean 95,220 feet of sewer pipe per year (as a support to the TV program)
- Flush 130,000 linear feet of sewer pipe per year

5.3. EMERGENCY/REACTIVE MAINTENANCE

The WPCM Department understands that while emergencies are unavoidable and cannot be always anticipated, it is imperative to know how to respond when an "emergency" does occur. The "Request for Service" procedures in the earlier part of this section provide an introduction to the types of actions typically performed by the Investigators when encountering a problem.

Emergency contractors are used to assist the WPCM Department with larger maintenance and repair projects. A procedure for hiring contractors to perform emergency repairs has been established. The conditions may vary to a degree as to when emergency contractors are mobilized; however emergency contractors are generally used for larger maintenance and repair projects.

5.4. MAINTENANCE MANAGEMENT SYSTEM

The WPC Utility has developed a program with the goal of creating a comprehensive database that tracks pending and completed work as well as aids in the estimation of cost. In addition to this the Utility wanted the information made easily available for everyday use.

The GIS tracking system is a linking of graphical and attribute data displayed through its Geomedia Professional software. The graphical data consists of manhole and sewer

segment identification from the GIS. The attribute data consists of data entered directly from work orders issued for maintenance or inspection.

5.4.1. The maintenance Process

Request for Maintenance Work

The request can come from other WPC Utility Groups, other WPCM Sections, WPC Utility Contractors, City Departments as well as from homeowners. The "Request for Service" is entered into the IMS database and referred to a Supervisor. The information entered is:

Who requested the work,
What type of work is to be done,
Where is the work to be performed (address),
When the request was made, and
Why the work is being requested.

Graphically Assigning the Work

The Supervisor can find out the sewer size, length, upstream and downstream manhole numbers (e.g. sewer segment) by looking up the address on the City's paper quarter section maps or by utilizing the GISweb a digital mapping intranet system. He can also see if any work has been done at the work address by accessing the IMS database. A copy of the quarter section map can be made to accompany the work order.

Databases

The WPCM Department utilizes a computerized management system to handle work orders.

Information from each complaint or work order is entered into the maintenance database. Maintenance database fields are as follows:

- Work Order Tracking Number
- Date Work Order Created
- Crew to be assigned to Work Order
- Problem Location
- Date/Time Service Request Received
- Employee who Received the Request
- Priority
- Map area
- Department responsible for work
- Comments to instruct crew

This information is saved as a pending job. Maintenance work can then be assigned by type of work and/or other considerations.

Once the maintenance work order is completed the data from the work sheets is entered into a data base. This database is able to compute job cost.

The Group has found these databases to be very useful in scheduling preventive maintenance such as root removal. Root removal from sewer lines is a continuous maintenance problem that needs to be performed on a regular basis for some sewer segments. By searching the data base WPC Utility is able to determine what sewer segments need periodic maintenance and how often.

5.4.2. Maintenance Tracking Database

Collection system maintenance activities are recorded and tracked in the IMS database. Activities that are directly related to union productivity bonus tracking are also tracked in a Microsoft Excel spreadsheet, because the IMS system does not track activities in as great a detail as management needs for this matter. This work includes, but is not limited to, TV inspection, flushing, derooting, degreasing, structure cleaning and inspections, and structure and main repairs and replacements. Work orders are generated from the Request for Service process, the scheduled maintenance program or other sources. The work request is entered into the system and assigned by a WPCM dispatcher or supervisor to a WPCM crew. As work is completed, information from the field crew is entered into the database. The system tracks the status of the work (assigned, complete, follow-up work required), the type of activity performed (flushing, vacuum, deroot, degrease, structure repairs, adjustments, etc), and findings of the field crews that either describe work performed or suggest additional work is necessary. This system is also utilized to schedule preventative activities (derooting, degreasing, structure cleaning, etc.). All maintenance activities are included in this system to provide a comprehensive record of all maintenance work completed throughout the system.

5.4.3. TV Inspection Database

A CCTV Inspection database, called Rapidview, is also utilized to monitor the condition of the system. As the CCTV investigation of a section of sewer is conducted, the crews enter their findings into the database on a computer mounted in their truck. When the inspection is complete, data is moved from the truck to the WPCM Department office to be uploaded into the Televising Data server and printed reports of the findings are reviewed by the Maintenance Supervisor. If the inspection reveals poor main conditions, the Maintenance supervisor may create additional work orders for additional maintenance/repair work or send the inspection information to the Engineering Group for their review. At this time, the

Televising Database and the Maintenance Tracking Database are completely separate systems that do not link together.

5.4.4. Project Tracking Database

Minor to moderate repair projects, such as main line repair, joint repair, building lateral repair, force main repair, collapsed pipe, structure, etc. are tracked by the WPCM Construction Supervisor in a Microsoft Excel spreadsheet that was designed in-house specifically for this process. The projects are listed by street address and include descriptions of the work to be done. As repair projects are identified, they are added to the spreadsheet to be scheduled. Once the project is scheduled, the Construction Supervisor will use the IMS Maintenance Tracking system to generate a Work Order for the appropriate crew. This action will create a Work Order number, and the system will track the type of work that needs to be performed, location, crew assignments and any additional instructions for the crew. The project is then assigned to a WPCM construction crew. Upon completion of the project, information from the construction crew is added to the IMS system, including length of pipe repaired or replace, supplies used to complete the project, and any other comments.

Large repair projects are contracted out, and at this time do not go into the IMS system for tracking.

Data from the Maintenance, Televising and Project Tracking systems can be linked to the City Utilities' GIS and can be mapped or compared to other existing data.

5.4.5. Inventory Management System

Collection system maintenance equipment and replacement parts are maintained by the City's Fleet Management Group. Supplies and material used for collection system repair and maintenance include, but are not limited to, pipe, precast concrete manhole components, castings, fittings, etc. The WPCM Department maintains an inventory of replacement parts presently valued at $54,000. The supply levels and materials usage costs are tracked by a Microsoft Access database designed in-house specifically for this process.

5.5. MONITORING/INFORMATION GATHERING

The WPCM Department is involved with the collection of primary data through the flow monitoring programs conducted with City owned equipment and City employees. Two examples of these are the SSO monitoring program and the CSO monitoring program. Each is introduced below.

SSO Monitoring

The current SSO Monitoring Program Originated in 2003 with the issuance of Administrative Order V-W-03-AO-07. It is discussed in the report entitled Inspection of Sanitary Sewer Overflows.

CSO Monitoring

This program is discussed in the report entitled CSO Monitoring Program. The program has been in place since April of 2005.

6. INSPECTING, CLEANING, AND REPAIRING

6.1. GENERAL

The purpose of collection system maintenance is to make sure the collection system (meaning all its components) performs as intended. This is accomplished through inspections, cleaning, and repairs.

Inspections assess the condition of a component and establish the need for reinspection, cleaning, repair, and replacement. Fort Wayne uses structural and operational inspections. Structural inspections are used to determine the structural integrity of a component. Operational inspections are used to determine if a component is performing as intended in the system.

Cleaning removes accumulated substances from a system component. Excessive accumulation can lead to corrosion, blockages, equipment malfunction, and odor. Many methods can be employed to clean components. The best method depends on the component and what needs to be removed.

Repairs restore the structural integrity of a worn or broken system component.

Maintenance methods and frequencies are discussed below by component.

6.2. COMPONENT MAINTENANCE

6.2.1. Sewers and Manholes

6.2.1.1. Inspections

6.2.1.1.1. Purpose

Inspections can be used to determine the structural integrity of the system's components, performance of the system, or the cause of poor system performance. Manhole inspections, pulling a mandrel through sewers, and closed circuit televising (CCTV) are all used to determine the structural condition of sewers. Metering and user observations are used to detect sewer performance problems. Visual inspections of surface conditions, manhole inspections, smoke testing, dye testing, and CCTV are all used to determine the causes of poor system performance.

6.2.1.1.1.1. Visual Inspection of Surface Conditions

Sidewalk irregularities; cracked, settled, or dipped pavement; or depressions along the path of the pipe are indicators. If a joint is bad or a pipe is broken, wastewater may wash away the surrounding soil and create a cavity beneath the surface. Sometimes the weight of the overlying soil is enough to cause collapse and a

depression at the surface. In easements, these depressions can be seen a flooded or sunken areas along the pipe route.

6.2.1.1.1.2 Manhole Inspections

A visual inspection of a manhole can detect missing bricks, concrete, or rungs; water seepage through the barrel or rim risers of the manhole; or broken rims and covers. Signs of bedding material in the invert suggest a breech of collapse in the upstream line. Deteriorated steps may indicate the presence of corrosive gases, possibly hydrogen sulfide. Evidence of high water or surcharging indicate partial blockages or excessive flow.

6.2.1.1.1.3.Pulling Mandrels

Offset joints, collapsed pipe, or protruding laterals can be detected by pulling a mandrel slightly smaller than the inside diameter of a sewer through the sewer. Accumulation of debris and other substances that restrict flow can also be detected. If the mandrel won't go through a problem exists.

6.2.1.1.1.4.Closed Circuit Televising

CCTV can be used to locate and describe pipe corrosion, cracks, offset joints, pulled joints, collapses and other structural failures. Points of infiltration, material deposits, illegal service connections, and causes of stoppages can also be located and described through CCTV.

6.2.1.1.1.5.Metering

Flow measurements can be used to determine I/I volumes by comparing dry and wet weather measurements. In some cases, flow measurements are used to detect wastewater leaking out of the pipe (overflows).

6.2.1.1.1.6.Smoke Testing

Smoke tests reveal roof, footing, and yard drain connections, as well as leaky manholes, cracked and leaky pipes, poor joints, and missing caps.

6.2.1.1.1.7.User Observations

Users report performance deficiencies such as backups, odor, and settlements.

6.2.1.1.2. Procedures

The procedure for performing each of the above inspections is discussed below.

6.2.1.1.2.1. Visual Inspection of Surface Conditions

Walk along the alignment of the sewer line and look for signs of sewer failure.

6.2.1.1.2.2.Manhole Inspections

Visually inspect the surface around the manhole. Then remove the cover and visually inspect the interior of the manhole. Use a standard form to record observations.

6.2.1.1.2.3.Pulling a Mandrel Through the Sewer

The sewer should be cleaned and a line should be pulled through the sewer before trying to pull the mandrel. A mandrel one size smaller than the sewer (6" mandrel for 8" sewer), should be tied to the line. A second line should be tied to the other end of the mandrel to back it out if an obstruction is found. Slowly pull the mandrel through the sewer. If it stops note where it stops and pull the mandrel out the same way it was pulled in. Repeat the process from the other end of the sewer.

6.2.1.1.2.4.Closed Circuit Televising

Procedures for conducting a television inspection can be found in Appendix E of the Water Research Centre's Sewerage Rehabilitation Manual. WRC codes are used for recording defects.

6.2.1.1.2.5.Metering

Procedures for metering sewers can be found in Chapter 6 "Flow Monitoring" of WEF Manual of Practice FD-6 Existing Sewer Evaluation & Rehabilitation. Depth/velocity automatic flow meters are the type of flow measuring device used.

6.2.1.1.2.6.Smoke Tests

Smoke testing procedures can be found in Chapter 4 "Methods of Infiltration and Inflow Evaluation" of WEF Manual of Practice FD-6 Existing Sewer Evaluation & Rehabilitation.

6.2.1.1.2.7.User Observations

Users see situations that should not exist and call the utility to report them.

6.2.1.1.3. Schedule

6.2.1.1.3.1.Visual Inspections of Surface Conditions

Visual inspections of surface conditions are used to investigate performance problems that have been identified by another type of inspection. They are done on an as needed basis.

6.2.1.1.3.2.Manhole Inspections

Manhole inspections are done at the same time structural inspections of sewers are done. They are also used to investigate performance problems that have been identified by another type of inspection on an as needed basis.

6.2.1.1.3.3.Pulling Mandrels

Mandrel inspections have been used to provide initial structural information on small (8”-15”) diameter sewers. Currently the City prefers the use of CCTV for investigations and inspections.

6.2.1.1.3.4.Closed Circuit Televising

CCTV is being used to develop an initial structural condition of small (8”-15”), medium (16” -36”) and large (>36”) diameter sewers. This process should be completed by the end of 2010. It will also be used for scheduled follow-up structural inspections. The follow-up schedule will be determined by the initial condition of the sewer and will be in the range of 5-20 years.

CCTV is also being used to investigate performance problems that have been identified by another type of inspection on an as needed basis.

6.2.1.1.3.5.Metering

Ninety nine percent of all CSOs are being metered on a continuous basis. Metering will also be done in individual CSS subbasins as CSS capacity improvement projects are completed for that subbasin where necessary to recalibrate subbasin models. Metering has been used to isolate sources of excessive I/I.

6.2.1.1.3.6.Smoke Testing

Smoke testing is used to isolate sources of excessive I/I.

6.2.1.1.3.7.User Observations

User observations are not scheduled. They take place continuously.

6.2.1.2. Cleaning

6.2.1.2.1. Methods

Maintaining a clean sewer is a main part of the preventive maintenance program. Roots, Grease, and deposited solids are the most common cleaning problems. Cleaning methods can be grouped into 3 general categories, hydraulic cleaning, mechanical cleaning and chemical cleaning. Each are discussed below and Table 3.4 of the Water Environment Federation's Manual of Practice 7 Wastewater Collection Systems Management suggests which methods should be used for what types of stoppages.

6.2.1.2.1.1.Hydraulic Cleaning

Hydraulic cleaning refers to any application of water to clean the sewer. Hydraulic cleaning includes the use of sewer balls, pigs, high-velocity jet nozzles, and vacuums. These methods are discussed more fully in Water Environment Federation's Manual of Practice 7 Wastewater Collection Systems Management.

6.2.1.2.1.2.Mechanical Cleaning

The term mechanical cleaning denotes the use of machinery to scrape, cut, or pull material out of a sewer. Among the most common methods of mechanical cleaning are rodding, power rodding and the use of bucket machines. These methods are discussed more fully in Water Environment Federation's Manual of Practice 7 Wastewater Collection Systems Management.

6.2.1.2.1.3.Chemical Cleaning

Chemical dosing is an option only after careful observation and planning and close consideration of the problems associated with the process. Chemicals cannot clear sewer line stoppages, they are often expensive, and chemicals used for one solution may cause a problem somewhere else. Chemicals can also harm the environment, employees, or the treatment process. Chemical cleaning is discussed more fully in Water Environment Federation's Manual of Practice 7 Wastewater Collection Systems Management.

6.2.1.2.2. Schedule

All sewer segments are cleaned during structural inspections. Sewers are also commonly cleaned as the result of a performance inspection. When these types of inspections identify sewer segments with chronic problems the segments are put on a regular cleaning list. There are lists for grease, roots, and sediment. The frequency of cleaning is dependant on the type of obstruction and the severity of the problem. In some segments grease removal is required weekly. In others root removal is required every two years.

6.2.1.3. Repairs

6.2.1.3.1. Methods

Repairs can be made in a number of ways. During repair of smaller lines, wastewater may be pumped around the section to be repaired. Techniques most frequently used include excavation and replacement and pipe lining.

6.2.1.3.1.1.Excavation and replacement

Excavation and replacement involves the removal of the existing pipes or manholes from the ground and replacing them with new ones. The cost of this technique can be much higher than other rehabilitation techniques and the time requirements are usually much longer. Application is recommended under the following conditions only:

- Pipes or manholes have lost their structural integrity, such as pipes or manholes which are collapsed, crushed, broken or badly deteriorated or cracked.
- Pipe size enlargement, change in grade, and/or alignment are needed in addition to pipe deficiency corrections.
- Damages to existing pipes or manholes have been identified and it is desirable to prevent the recurrence of these damages by replacement with components of better quality and greater strength.

6.2.1.3.1.2.Pipe Lining

Pipe lining involves internally lining structurally sound round concrete or brick piping with a cement or epoxy mortar. The method is generally applied to pipes 24 inches in diameter or larger, although it may be applied to smaller pipes. The cement mortar linings are vulnerable to chemical attack and should not be used in sewers with corrosive contents or environs. For corrosive environments, the epoxy mortar should always be used.

6.2.1.3.2. Construction Repairs and Community Relations

Poor community relations with the sewer maintenance department may be caused by such minor occurrences as: (1) the jar received when an automobile hits a sunken paving cut; (2) an obstruction in the road; (3) improper excavating; and (4) inadequate warnings and others.

6.2.1.3.2.1.Excavations

Quite often excavations for sanitary sewers must be left open overnight. Here, public relations take the form of public safety. The excavation, if it is in the street, should be protected by suitable barricades and lighted carefully. In the event of storms of high winds, personnel should make certain the proper warnings are still in place. Care must be taken by any means to prevent blocking a private driveway.

Every Consideration should be given to the dust and noise which result from sewer repair work. Repair work should not be unnecessarily delayed.

6.2.1.3.2.2.Repaving

After repair work is completed, roadway cuts and sidewalks may need to be repaved. Good public relations, as well as good traffic safety, suggests a stabilized backfill on heavily traveled streets. This can be done by tamping selected materials in the backfill and finishing off with a topping of quick-setting pavement patch compound such as asphalt or Portland Cement concrete. If streets have concrete base and asphalt surface, a passable repair can be made by placing concrete over the tamped backfill to within a few inches of street grade and finishing the repair later.

6.2.1.3.2.3.Cleanup

Cleanup work should be thorough. If the excavation has been made in an alley, the ground should be restored to proper condition for adequate drainage, and be made as neat as or neater than it was originally. Pieces of broken pipe, tar, or large rocks from the excavation should not be left on the site. In the event the work is in a yard or a parkway, the area should be put back to functional condition as soon as practicable. Coordination with the property owners and other governmental agencies is essential.

It is good policy to remove sod and stack it carefully until the excavation is completed, and then employ reasonable soil stabilization and replace the sod. Repairs during cold weather will mean the loss of grass; in this case, of course, it cannot be resodded, but certainly any evidence of construction in the way of loose rock can be removed. Backfill should be made with a suitable top soil and seed mulch. In no case should a mounded trench be left in front of an owner's

property for very long. It is better to carry off the excess and, at a later date, add top soil to make up for trench settlement. These comments apply to public property as well as private property. Streets and alleys rights-of-way are frequently as important to adjoining property owners as their own property. Therefore, repairs should be made as promptly as possible.

Many owners believe that their properties extend to the pavement. It is important to explain these repairs in advance to avoid problems with the adjacent owners.

6.2.2. Diversion Structures

6.2.2.1. Inspections

Structural inspections are used to determine the structural integrity of the diversion structures. Operational inspections are used to determine the performance or cause of poor performance. In addition to the structural and operational inspections, the City also inspects diversion structures daily as part of its monitoring program for CSO events.

6.2.2.1.1. Procedures

6.2.2.1.1.1. Structural Inspections

- Check dams and side weirs for damage

6.2.2.1.1.2. Operational Inspections

- Check base flow to determine if downstream obstructions are present
- Check to see if overflows have occurred or are occurring to determine if the structure is operating properly
- Check for river intrusion to determine if discharge points are functioning properly
- Check for interceptor surcharging to determine if the interceptor is operating correctly
- Download meter data to determine the start, duration, and volume of any overflows that have occurred.

6.2.2.1.2. Schedule

6.2.2.1.2.1.Structural Inspections

Structural inspections are conducted annually.

6.2.2.1.2.2.Operational Inspections

Operational inspections are conducted weekly and after significant runoff events. (See monitoring plan for site specific instructions)

6.2.2.2.Cleaning

Cleaning involves entering the structure and dislodging and removing the debris that is causing the blockage.

6.2.2.3.Repairs

Repairs consist mainly of repairing damaged or corroded concrete structures such as dams or side weirs.

6.2.3. Discharge Points

6.2.3.1.Inspections

6.2.3.1.1. Purpose

Structural inspections are used to determine the structural integrity of the discharge point. Operational inspections are used to determine the performance or cause of poor performance. In addition to the structural and operational inspections, the City also inspects discharge points daily as part of its monitoring program for CSO events.

6.2.3.1.2. Procedure

6.2.3.1.2.1.Structural inspections

- Check for erosion damage
- Exercise sluice gates
- Check to make sure tide gates close tightly

6.2.3.1.2.2.Operational inspections

- Diversion Structures are inspected at least once a week and after all significant runoff events. If river intrusion is observed during a regulator inspection the corresponding discharge point tide gates should be inspected.

6.2.3.1.3. Schedule

6.2.3.1.3.1. Structural Inspections

Structural inspections are conducted annually.

6.2.3.1.3.2.Operational Inspections

Operational inspections are conducted when river instruction is detected.

6.2.3.2.Cleaning

Remove debris keeping tide gates from closing tightly.

6.2.3.3.Repairs

Adjust tide gates when required. Lubricate sluice gates annually.

6.2.4. Catch Basins

6.2.4.1.Inspections

6.2.4.1.1. Purpose

Structural inspections are used to determine the structural integrity of the catch basin. Operational inspections are used to determine the performance or cause of poor performance.

6.2.4.1.2. Procedure

6.2.4.1.2.1.Structural inspections

- Check grate not plugged
- Check grate properly seated and not damaged
- Check elbow not plugged

- Check to make sure no settlement around structure

6.2.4.1.2.2.Operational inspections

- Catch basins are inspected to ensure there is not an excess of material in the bottom sump of the catch basin that may plug discharge or prevent catch basin from capturing additional material.

6.2.4.1.3. Schedule

6.2.4.1.3.1. Structural Inspections

Structural inspections are scheduled on approximate 2.5 year rotation. This includes a full cleaning of the structure.

6.2.4.1.3.2.Operational Inspections

Operational inspections occur along with structural inspections or as necessary in response to street or yard flooding complaints.

6.2.4.2.Cleaning

Two major aspects of cleaning are involved with catch basins. Cleaning the grate by scraping out debris from openings of intake grate and vacuuming debris and sediment out of catch basin sump.

6.2.4.3.Repairs

Repairs consist of mainly replacing catch basin grate, or repairing damaged structural concrete or brick as necessary per structural inspection.

APPENDIX A

MASTER VEHICLE & EQUIPMENT LIST BY DEPARTMENT - last update 9/12/05							
DEPT	VEH#	YEAR	VEH MAKE	VEH ID #	LICENSE	TIRE SIZE	REPLACE
SWM	44032	2004	Sterling Semi Tractor	2FWJAZCV74AM67357	65325	(F&R) 11.R22.5	2015
SWM	39077	1999	INT'L 2TN DUMP	IHTSLABM9XH665273	55270		2007
SWM	20112	2000	Chevy Pickup Truck	1GCEK19V5YZ315520	57443	P245/75R16	2008
SWM	25024	2005	GMC Sierra Hybrid	1GTEC19T45Z258136	27810	(F&R) P235/75R16	2012
SWM	27322	2007	Ford Escape Hybrid	1FMYU59H97KB06485		(F&R) P235/70R16	2014
SWM	33105	2003	4300 INT'L 2TN DUMP	1HTMNAAMX3H589237	63178	(F&R) 245/70R19.5	2010
SWM	34209	2004	4300 INT'L 2TN DUMP	1HTMNAAM94H656380	65318	245/70R 19.5	2011
SWM	56700	1996	Lg. Kobelco Excavator	YQU2558	NP		
SWM	43169	2003	Volvo Tandem Dump Truck	4V5KC9GF63N347919	63158	(F)315/80R22.5(R)11R22.5	2011
SWM	45186	2005	INT'L Vacuum Truck	1HTWYAHT05J159421	33432	(F)385/65R22.5(R)11R22.5	2012
SWM	45187	2005	INT'L Vacuum Truck	1HTWYAHT55J168700	33431	(F)385/65R22.5(R)11R22.5	2012
SWM	46084	2006	IH Tandem Dump Truck	1HTWYAHT16J260789	69092	(F)315/80R22.5(R)11R22.5	2013
SWM	47002	2007	IH 7600 Combo Truck	1HTWYAHT37J496300		(F)315/80R22.5(R)11R22.5	2014
SWM	53240	2003	Gradall Ditch Machine	225419	NP		2013
SWM	53239	2003	Vermeer Chipper	1VRN1312521002876		215/75R175	
SWM	54119	2004	JD Backhoe 410G	T0410GX933936		(F) 12.5/80-18 (R) 19.5L-24	2015
SWM	55101	1985	INGERSL AIR COMP	146845U85953	6096	F4.10/3.50-4(B)P215/75R15	2003
SWM	55701	2006	CAT Shid Loader	0287BCZSA02797	NP	Rubber Tracks	
SWM	61005	1971	DUETZ 6" PUMP	F3-6L912/W	NP	P215/75B15	2003
SWM	63616	2003	Lg. Target Concrete Saw	saw #373602-motor #00680186	NP		
SWM	65102	1985	6" CH&E PUMP	TO4219D111672	NP	(F)4.80-8(B)P195/75R15	2006
SWM	65103	1985	6" CH&E PUMP	TO4219D111671	NP	(F)4.80-8(B)P195/75R15	2006
SWM	65104	1985	6" CH&E PUMP	TO4219D113921	NP	(F)4.80-8(B)P195/75R15	2006
SWM	66101	1986	6" CH&E PUMP	TO4239D140668	NP	(F)4.80-8(B)P195/75R15	2006
SWM	66102	1986	6" CH&E PUMP	TO4239D145267	NP	(F)4.80-8(B)P195/75R15	2007
SWM	66103	1986	6" CH&E PUMP	TO4239D145266	NP	(F)4.80-8(B)P195/75R15	2007
SWM	62109	2002	Godwin Hydraulic Pump	2209222	NP	ST205/70D15	
SWM	74613	1994	Hudsn htd18c bh trl	10HHTD1C9R1000036	842	9.50-16.5LT	2014
SWM	47112	1997	INT'L TANDEM DMP	1HTSWAARXVH447791	492	11R22.5 front & rear	2008
SWM	71207	2001	Talbert Lowboy Trl	40FS0493811020602		255/CR22.5	
SWM	72614	2002	Eager Beaver Trl - 20 ton	112H8V3212L060539	63131	215/75R 17.5	2014
SWM	43169	2003	Volvo Tandem Dump	4V5KC9GF63N347919	temp	(F) 315/80R22.5(R) 11R22.5	2011
SWM	77702	2007	Towmaster Trailer	4KNUT20207L163320		215/75R 17.5	
SWM	78507	1998	CAM Utility Trailer	4YUUF0910WL001497	57426	205/75R15	
WPM	45555	2004	INT'L Combo truck	1HTWYAHT75J148268	27837	(F)425/65R22.5 (R)11R22.5	2012
WPM	47003	2007	INT"L Combo truck	1HTWAHT27J550895	74211	(F)315/80R22.5(R)11R22.5	2014
WPM	22017	2002	Ford F250 Pick Up	1FTNF20L32EC50042	60629		2010
WPM	23759	2003	Ford F250 Superduty	3FTNF20LX3MB36759		LT 235/85R16 M/S	2011
WPM	23760	2003	Ford F250 4x4	3FTNX21L53MB36762		LT 235/85R16 M/S	2011
WPM	36106	2006	INT'L 2TN Dump	1HTMNAAM06H319714	69250	(F&R) 245-70R 19.5	2014
WPM	36210	2006	INT'L 4700 2TN Dump	1HTMNAAM66H327249		(F&R) 245/70R 19.5	2014
WPM	37115	2006	INT'L 4300 2 Ton Dump	1HTMNAAM67H451281	54719	(f&r) 245/70R 19.5	2013
WPM	27525	1997	Ford F250 Pick Up	3FTHF25HOVMA39221	54647	LT 235/85R16 M/S	2006
WPM	25182	2005	Ford Ranger Super Cab	1FTZR45EX5PA42652	27561	(f&r) P255/70R16	2013
WPM	25183	2005	Ford Ranger Super Cab	1FTZR45E15PA42653	27560	(f&r) P255/70R16	2013
WPM	26013	2006	GMC Sierra Hybrid	1GTEC19T06Z297811	21173	(F&R) P235/75R16	2014
WPM	26318	2006	Ford Escape Hybrid	1FMYU96H76KC95874	69837	(f&r) P235/70R16	2014
WPM	26319	2006	Chevy Colorado 4x4	1GCDT136368296365	69905	P235/75R15	2014
WPM	29527	1999	Ford F250 4X4	1FTNF21L4XEA71952	55201	LT265 / 75R16	2008
WPM	27308	1997	Ford Rodder F350	1FDNF80C1VVA31776	57422	225/70R19.5 FRT &REAR	2010
WPM	55703	2005	Medium Size Excavator	7H04-03236	NP		2015
WPM	58701	1998	Mini-excavator	8004858	NP		
WPM	72614	2007	Komatsu mini-excavator	KMTPC029T01003195	NP		2017
WPM	30064	2000	MH Sealing Truck	3FCMF53S3YJA02636	57414	(f & r) 245/70R 19.5	2010
WPM	29065	1989	Hydro-seeder Truck	1GBKP32K6K3317176	53598	8-19.5	
WPM	22068	2002	TV Truck (white)	1FDWE35L12HA66170	60696	(f&r) LT225/75r16 -	2008
WPM	39111	1999	Sterling Flusher	2F2HRJAA1XAA32000	55855	11R-22.5	2007
WPM	40159	2000	Sterling Tri-axle	2FZXEPYB2YAG10146	54447	(F)425/65R22.5(R)11R22.5	2010
WPM	32081	2002	INT'L 4900 Flusher	1HTSDADRX2H408637	53642	255/70R22.5	2009
WPM	34018	2004	Sprinter TV Truck	WD2PD543145603017	65383	(f & r) 195/70R 15	2012
WPM	34208	2004	4300 INT'L 2TN DUMP	1HTMNAAM24H656379	65200	245/70R 19.5	2011
WPM	35166	2005	4700 INT'L Flusher	1HTWCAZR95J010457	27830	(f&r) 11R22.5	2012
WPM	37116	2006	INT'L 7400 Flusher	1HTWCAAR87J488187	71279	(F)295/75R22.5 (R)11R22.5	2013
WPM	27526	1997	Ford F250 Pick Up	1F1HF25H1VEC13819	53261	LT 235/85R16 M/S	2006
WPM	14047	2004	Ford Taurus	1FAFP55U24G110677	65389	(F&R) P215/60R16	2012
WPM	25021	2005	GMC Sierra Hybrid	1GTEC19T05Z267481	27825	(F&R) P235/75R16	2012
WPM	25023	2005	GMC Sierra Hybrid	1GTEC19T45Z280895	27823	(F&R) P235/75R16	2012
WPM	43168	2003	Volvo Tandem Dump	4V5KC9GF43N347918	63159	(F)315/80R22.5(R)11R22.5	2010
WPM	51117	2001	Ford N.H. Skid Loader	196024	NP	16.5	2013
WPM	55103	1985	Ingersoll Air Comp	146846U85953	5587	F4.10/3.50-4(B)P215/75R15	
WPM	50116	2000	410E Deere Backhoe	T0410EX884046	NP	(F) 12.5/80-18 (R) 21L.24	
WPM	57285	1997	Mauldin Roller	32			
WPM	60087	1989	Sereco Power Mach	LB-9-881729	NP	(F) hard rubber(B)7.00-15LT	
WPM	60088	1989	Sereco Power Mach	LB-9-881728	NP	(F) hard rubber(B)7.00-15LT	
WPM	64071	1984	Western mortar mixer	23362	NP	4.80-12	
WPM	64150	1984	Best cement mixer	4641118	NP	b78-13	
WPM	65108	2005	Godwin Hydraulic Pump	4313311	NP	LT235/85R16	
WPM	66104	1986	CH&E 6" pump	TO4239D140670	NP	(F)4.80-8 (B) P195/75R15	
WPM	63107	2003	ACME 6" Pump	30505			

DEPT	VEH#	YEAR	VEH MAKE	VEH ID #	LICENSE	TIRE SIZE	REPLACE
WPM	66105	1986	Hand Rodder Sreco	PDL1994	NP	Hard Rubber	
WPM	70610	1990	Interstate BH Trailer	1JKDTP292LA601828	53357	8-14.5 LT	
WPM	70611	1980	Reids Utility Trailer	702477	6456	8-14.5 LT	
WPM	71611	1991	Bemis Arrowboard	9107B201	NP	P185/80D13	
WPM	79610	1999	Tracom Arrowboard	645		205 \ 75 R14	
WPM	72717	1992	Shore Trailer	10HHD1206N1000019	298	8-14.5LT	
WPM	72718	1992	Shore Trailer	10HHD1202N1000020	299	8-14.5LT	
WPM	73100	1993	Brindle TV Trailer	1L90V1113PG085016	53607	p235/75r15	
WPM	74592	1954	Concrete saw trailer	no id	NP	6.50-16LT	
WPM	78719	2007	Felling concrete saw trailer	5FTPE122581029994		ST225/75R15	
WPM	79530	1989	S&S MFG Trailer	PH124F308K1J1000L	NP	p215/75b15	
WPM		1990	Backhoe att skid ldr	88M2CL1391			
WPM	WPM03	1995	Partner Abrasive Saw		Spare	Tool Room	
WPM	WPM04		Abrasive Saw	14" blade			
WPM	WPM07	1995	Honda Pan Tamper				
WPM	WPM08	1995	Honda Pan Tamper				
WPM	WPM09		Jumping Jack Tamper				
WPM	WPM14	1995	3" Pump				
WPM	WPM15		3" Pump				
WPM	WPM16	1995	3" Pump				
WPM	WPM18	1995	3" Pump				
WPM	WPM20	1995	3" Pump				
WPM	WPM21	1995	2" Pump				
WPM	WPM22	1995	2" Pump				
WPM	WPM23	1995	2" Pump				
WPM	WPM27	1995	2" Pump				
WPM	WPM28	1995	3" Pump				
WPM	WPM29		Dayton Generator				
WPM	WPM30		Dayton Generator				
WPM	WPM32		Hand Rod Machine				
WPM	WPM33		Air Blower	sets in mh frame			
WPM	WPM34		Air Blower	sets in mh frame			
WPM	WPM35		Mower	21" cut John Deere			
WPM	WPM36		Mower	21" cut Murry			
WPM	WPM38		Smoke Test Blower				
WPM	WPM41		Stihl Chain Saw	24" bar			
WPM	WPM42		Stihl Chain Saw	24" bar			
WPM	WPM43		Stihl Concrete Saw				
WPM	WPM45		Honda Air Compressor				
WPM	WPM46		Snow Blower				
WPM	WPM47	2001	Stanley Hydraulic Unit	99122511			
WPM	WPM48	2001	3" Gorman Rupp Pump	1207811			
WPM	WPM49	2001	Kohler Hydro-seeder	2811104731			
WPM	WPM50	2001	Ryobi Weed-Eater	101144309			
WPM	WPM51	1987	Cement Pump in MHST				
WPM	WPM053	2003	Target Abrasive Saw	1311494352			
WPM	WPM054	2003	Stanly hydr abrasive saw	1590			
WPM	WPM57	2004	Partner Abrasive Saw	04 0500089		Spare (toolroom)	
WPM	WPM58	2004	Partner Abrasive Saw	04 0500093			
WPM	WPM059	2004	Stihl Chain Saw - MS180	262-190-104			
WPM	WPM060	2004	Tamper for JD Backhoe	220083			
WPM	WPM061	2004	Handi-ram for JD Hoe				
WPM	WPM062	2004	Hydraulic Pump for JD	49334FXJ0418X8			
WPM	WPM063	2005	Stihl Chain Saw MS180	264392843			
WPM	WPM064	2005	Stihl Weed-eater	257067353			
WPM	WPM065	2004	Partner Concrete Saw	04-5200477	#112		
			Chicago Pneumatic drill	(CP 9 A) 04232X019N			
WPM	WPM66	2005	Stihl Chainsaw-MS290	264749546			
WPM	WPM67	2005	Stihl Leaf Blower-BR550	265203987			
WPM	WPM068	2005	Abrasive Saw	05-3700416	#124		
WPM	WPM069	2005	Abrasive Saw	968 34 14-00	#107		
WPM	WPM070	2000	Kent Handy Ram C.P.6				
WPM	WPM071	1990	New Holland B-109				
	WPM072		attachment to 50162				
WPM	WPM073	2006	Barrel Grinder CAT HM312	DJP00108			
	WPM074		Harley Rake			attachment to 51117	
WPM	WPM075	2006	Mower Deck CAT BR378	RDN00189			
		2006	Milwaukee 41/2" Grinder	856H80543 0598		Hand held (red in color)	
		2006	Milwaukee 71/4" Circular Saw	983C80609 0913		Red in color	
WPM	WPM076	2006	Boss Snow Plow	STB03167		attached to unit #29527	
WPM	WPM077	2006	Partner 750 Abrasive Saw	06-2500457	#169		
WPM	WPM078	2006	Partner 750 Abrasive Saw	06-4200617	#105		
		2007	Rugby 300 SG Lazer Level	300-61682		Purchased by Engineering	
		2007	Rugby 300 SG Lazer Level	300-61540		Purchased by Engineering	
		2007	Dewalt 18 volt cordless drill	126372	#124	keeping on truck #34209	
		2007	Dewalt 18 volt cordless drill	126377	#169	Keeping on truck #34208	
		2007	Dewalt 18 volt cordless drill	126363	#112	Keeping on truck #36210	
		2007	Dewalt 18 volt cordless drill	126358	#107	keeping on truck #37115	
		2007	Dewalt 18 volt cordless drill	126337	#105	keeping on truck #36106	
		2007	Dewalt 18 volt saws-all	352342	#120	keeping on truck #30064	
WPM	WPM079	2007	Troybuilt Pony Tiller	1D107K80049			
WPM	WPM080	2007	Troybuilt Pony Tiller	1L015K80004			

APPENDIX B

WPCM/STM **Log Sheet**

DATE:_____ **ONLY USE CODES FROM BOTTOM OF PAGE**

TIME	NAME	PHONE	CODE	ADDRESS	ASSIGN

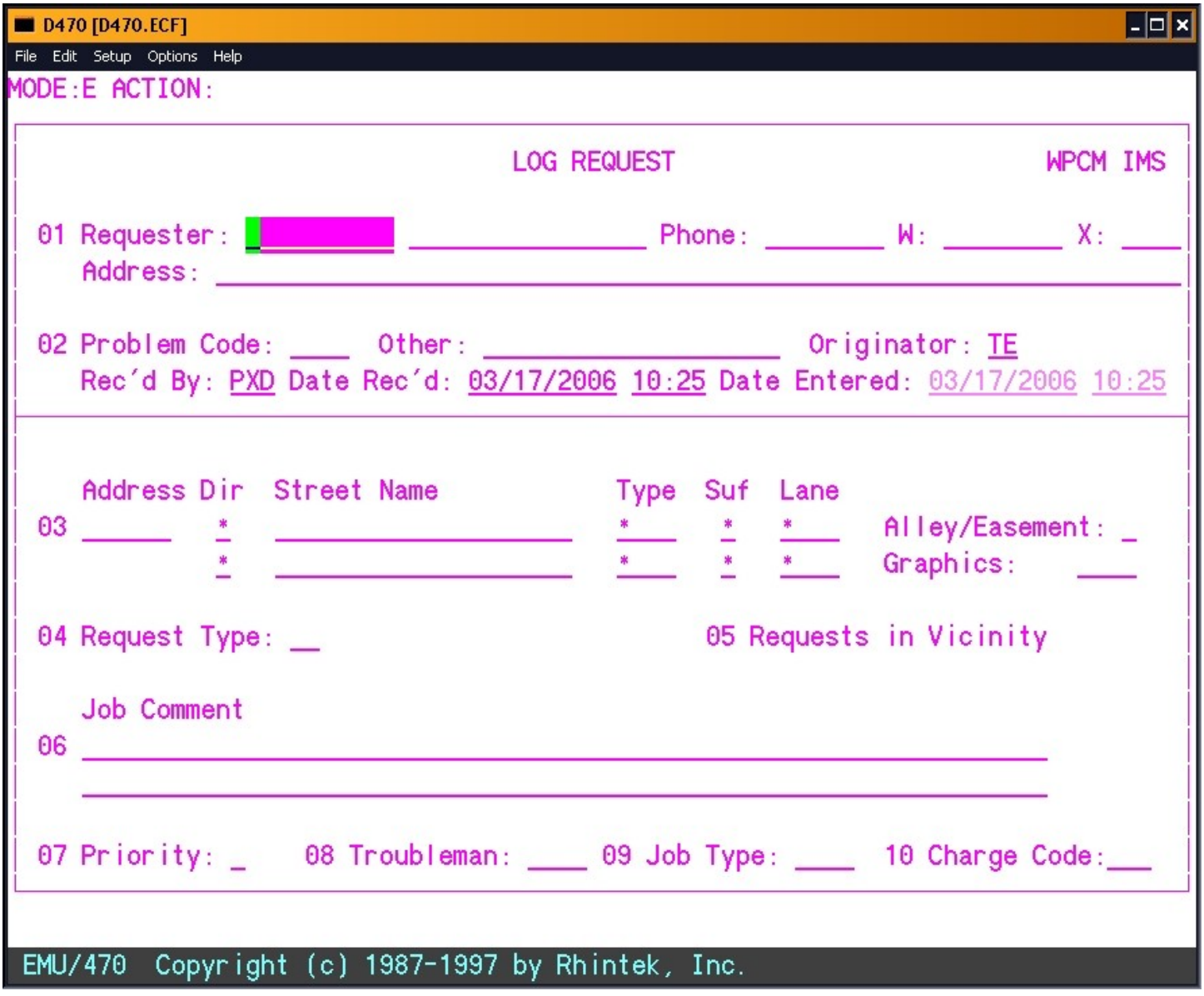
Back Up/Slow Drain - BU
Construction Complaint - CC
Internal Request - INTR (from other dept)
Yard Flooded/Standing Water - YR

Bad Odor - ODOR
Contract Services - CS
Lid Off Structure - LO

Basement Flooding - BU
Ditch Problem - DIT
Street Flooding - SF

Cave In - CAVE
Hazardous Spill/Discharge - HS
Vermin Problems - VER

APPENDIX C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MODE:E ACTION:
LOG REQUEST
WPCM IMS
01 Requester:
Phone:
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02 Problem Code:
Other:
Originator: TE
Rec'd By: PXD Date Rec'd: 03/17/2006 10:25 Date Entered: 03/17/2006 10:25
Address Dir Street Name
Type Suf Lane
03
Alley/Easement:
Graphics:
04 Request Type:
05 Requests in Vicinity
Job Comment
06
07 Priority:
08 Troubleman:
09 Job Type:
10 Charge Code:
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EXHIBIT A-2

WATER POLLUTION CONTROL DEPARTMENT
Of
FORT WAYNE, INDIANA

CSO TREATMENT FACILITIES, COMBINED SEWER SYSTEM PUMP STATION, AND MECHANICAL REGULATOR OPERATION AND MAINTENANCE PLAN

JULY 2006

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1. INTRODUCTION

1.1. PURPOSE, OBJECTIVES, AND GOALS

This report is entitled a "CSO Facilities, Combined Sewer System Pump Station and Mechanical Regulator Operation and Maintenance Plan". It describes programs and procedures currently undertaken by the Water Pollution Control Plant (WPCP) Group in managing the operation and maintenance of the combined sewer overflow treatment, pump station, and mechanical regulator facilities. The WPCM Department provides sanitary sewer and storm water maintenance services in addition to the combined sewer services described in this document.

This report is not an operation and maintenance manual. It does not provide detailed descriptions of specific operation and maintenance functions or system components. These descriptions are provided elsewhere. Rather, this report presents a functional overview of programs, equipment and personnel in place to manage the operation and maintenance of the CSO treatment facilities, combined sewer system pump stations, and mechanical regulators on a daily basis for the Water Pollution Control (WPC) Utility.

The WPCP Group is responsible for all in-house maintenance and repair functions at the WPC Utility related to mechanical or electrical equipment. In addition the WPCP Group is involved in a host of other activities including but not limited to operating the water pollution control treatment plant, the biosolids facilities, the industrial pre-treatment program, the sanitary sewer system pump stations, and the WPC Utility laboratory.

Although it is impractical to detail every function performed by the WPCP Group, Section 5, 6, and 7 of this plan emphasizes operating and maintenance procedures for the CSO Facilities, combined sewer system pump stations, and mechanical regulators respectively. These sections emphasize the WPCP Group's capabilities to operate and perform preventive and emergency maintenance. This report is intended to supplement and be consistent with emergency plans and standard operating procedures.

It is hoped that the reader will gain an appreciation of the level of commitment provided by the WPC Utility through its WPCP

Group to protect human health and the environment by its programs and activities.

1.2. UPDATING AND MAINTENANCE OF THE PLAN

It is recommended that the WPC Utility update the Plan on an as-needed basis to reflect revisions to the NPDES permit, construction of new combined sewer collection facilities and new initiatives that are being undertaken by the WPCP Group.

2. THE WATER POLLUTION CONTROL UTILITY ORGANIZATION

The Water Pollution Control Utility is responsible for the management and operation of the City's sewage collection and treatment system. The Director of Public Works and City Utilities has primary responsibility for the administration of the entire sewage system including; design, construction, operation, maintenance, and repair of all sewers and sewage treatment facilities. The Director manages 4 groups of departments: the Water Resources Group, the Water Pollution Control Plant (WPCP) Group, the Water Pollution Control Maintenance (WPCM) Department, and the Utility Administration (UTA) Group.

The Water Resources Group is responsible for the planning and administration of capital projects, service extension permits, and maintaining all sewer maps. The Water Resources Group is also responsible for planning, evaluating, and development of projects; development, management, and implementation of the capital improvement program; acquisition of easements and property; and project management from conception through design, construction, completion, and acceptance of the project with the goal of project completion on time and within budget.

The Water Pollution Control Plant Group has the responsibility for operating and maintaining the wastewater treatment plant, the package treatment plant, biosolids facilities, mechanical regulators, CSO facilities and pumping stations. They are also responsible for regulating industrial waste discharges, pretreatment programs, sampling, and analytical laboratory operation.

The Water Pollution Control Maintenance Department is responsible for inspection, cleaning, and repair and replacement of all sewers, combined sewer outlets and appurtenances. They also provide CSO and SSO monitoring services.

The Administrative Group is responsible for accounting, budgeting, and customer service. They also take the lead in the preparation of rules, regulations, and legislation required to operate the Utility.

3. THE WATER POLLUTION CONTROL PLANT GROUP

3.1. ORGANIZATIONAL DESCRIPTION

The Water Pollution Control Plant (WPCP) Group is responsible for operating and maintaining the wastewater treatment plant, the package treatment plant, mechanical regulators, CSO treatment facilities and pumping stations. They are also responsible for regulating industrial waste discharges, pretreatment programs, sampling, and analytical laboratory operation. A table of organization is presented in Figure 3-1. The WPCP Group is organized into 8 functional areas illustrated in Figure 3-2 and introduced below.

Area	**Primary Function(s)**
1. Operations	* Monitor Plant Operations * Adjust Processes
2. Biosolids	* Dewater and Process Biosoilds
3. CSO Treatment	* Operate CSO Treatment Facility
4. Water Quality	* Administer Pre-Treatment Program * Sampling & Water Quality Inspection Services
5. Laboratory	* Analyzes WPCP Samples
6. Maintenance	* Maintain & Rehab WPCP Process Equipment * Program & Calibrate I&C Equipment
7. Administration	*Processes Personnel Data *Processes Accounting Data *Processes Plant Operating Data
8. Training	*Teach Safety Procedures *Teach Job Skills

The purpose of the above listing is to highlight primary functions of the 8 areas. These designations reflect normal day-to-day operations. As can be seen, much of the work done by the WPCP Group relates to information gathering, information analysis, process adjustment, maintenance and training. A brief description of each area is below.

Figure 3-1
WPCP Organizational Chart

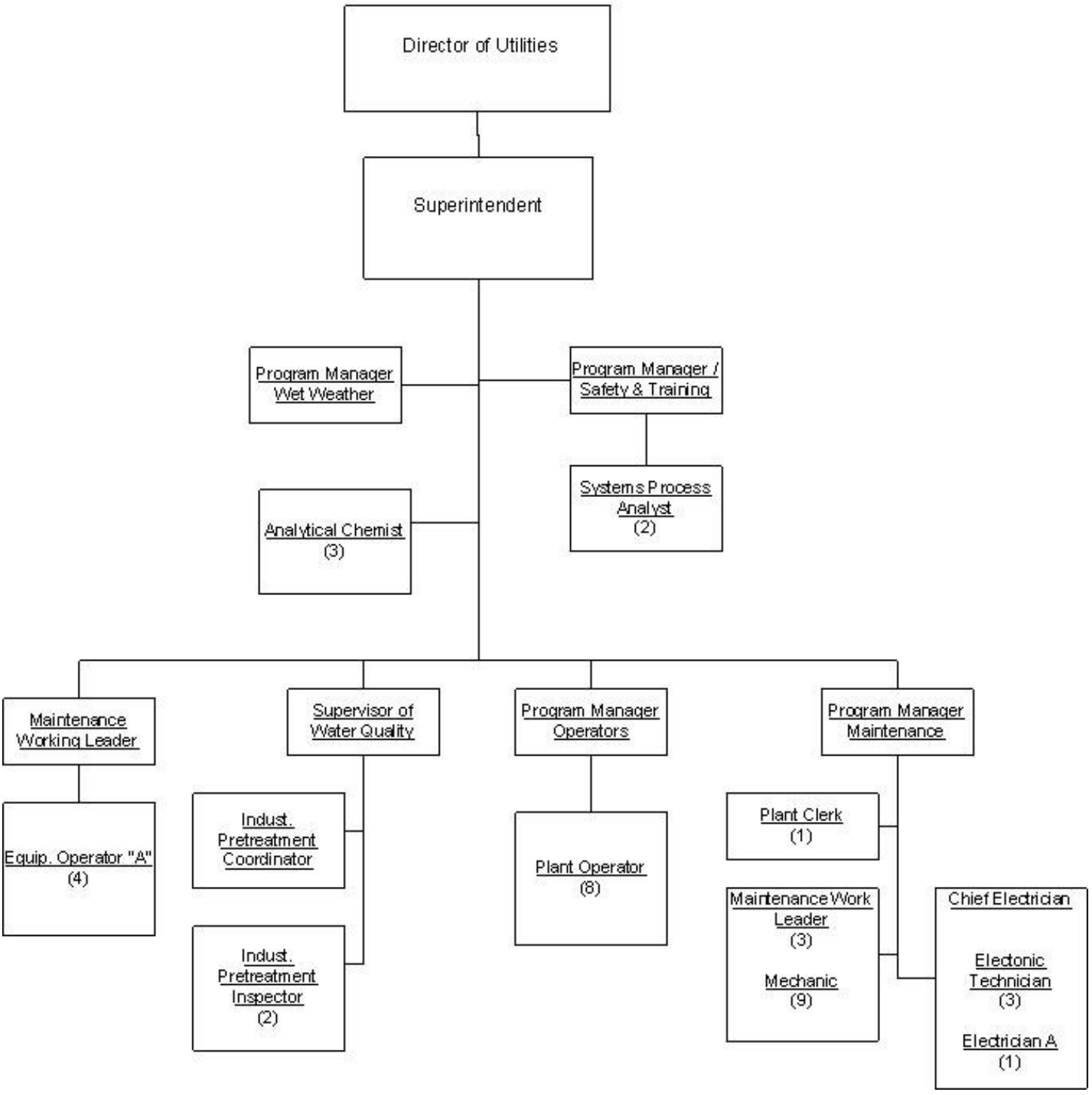
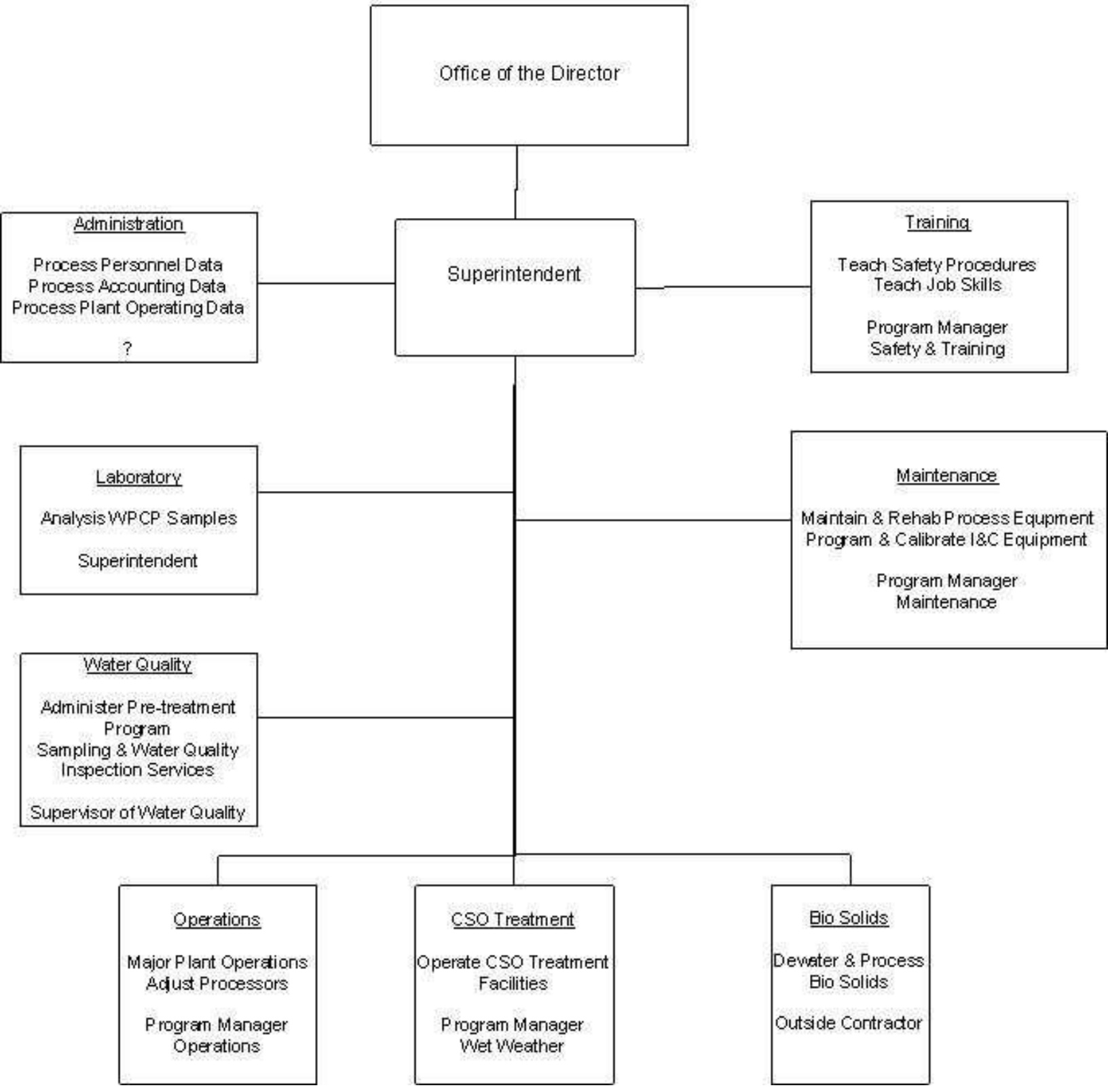


Figure 3-2
Functional Areas of WPCP



Operations: Continuous monitoring of the treatment plant and collection system pump stations is performed in this area. Operators spend about a third of their time in one of three control rooms monitoring remote sensors installed through out the treatment plant and in collection system pump stations. Two thirds of their time is spent touring the facilities visually inspecting equipment and the processed sewage.

This area is also responsible for process adjustments required to properly treat sewage and requesting reactive maintenance services. The area also has some plant security monitoring responsibilities.

Biosolids: Biosolids from the plants digesters are pumped to ponds where it is dewatered and processed for reuse by this area.

The biosolids area also processes lime from the filtration plant, processes soil from City excavations for reuse, and manages a yard waste/leaf pickup recycling program.

CSO Treatment: This area is responsible for screening, pumping, routing, detaining, and sampling CSOs that are directed to CSO Treatment Facility. They are also responsible for seeing that required maintenance is performed on the facilities.

Water Quality: This area is responsible for administration of the Industrial Pretreatment Program, including permit writing, inspections, and monitoring. In addition to the pretreatment activities this area samples flow from restaurants, waste haulers, and contract customers. They also develop and implement pollutant minimization programs.

Laboratory: This area performs chemical testing and analysis of samples collected by other areas of the WPCP Group. If results are out of acceptable ranges they notify the appropriate area. Their data is posted to a database that is accessible to the other area for their use.

Maintenance: This area handles the mechanical and electrical maintenance for the WPCP Group. Electricians install wiring, calibrate instruments, and maintain instrument and control systems.
Two mechanical crews perform preventative and reactive maintenance at the plant. Another mechanical crew performs preventative and reactive maintenance at the pump stations and mechanical regulators through out the collection system.

Administration: The administrative area is responsible for maintaining the data bases used by the WPCP Group, entering manually collected

data, printing reports, and performing statistical analysis on operational data. They also keep accounting and personnel records for the WPCP Group.

Training: This area teaches safety procedures, provides instructions on specialized job activities such as the use of infrared cameras, and provides training in basic job required skills such as math or pump maintenance.

With the exception of the Laboratory Area, each of the functional areas includes a Supervisor or a Program Manager to report to the Superintendent. The Laboratory Area is supervised by the Superintendent.

Supervisors or Program Managers hold positions of supervisory authority under the Superintendent and are senior operations staff. Supervisors or program Managers work with the crews to resolve operational and maintenance problems and serve as a liaison between the crews and the superintendent. During normal working hours, there are a number of supervisors who can handle problems as they arise. During evenings and weekends, problems are referred to the "Supervisor on Call". Supervisors on Call are changed on a rotating basis once every week.

The Superintendent is in charge of the WPCP Group and reports to the Director. Although the Superintendent will normally not be personally involved in most activities, he/she is administratively responsible for activities performed by the Group, including all fiscal and budgetary matters and coordination with the Director's office. The Superintendent also is a valuable technical resource who is knowledgeable in the operation and maintenance of treatment systems and is therefore, frequently involved in revising strategies and directing actions to solve the most complicated problems.

In no way does this completely describe all work done by these areas nor reveal how they interact with each other. As will be seen in Sections 5, 6, & 7 all groups interact and coordinate to resolve treatment related problems that arise. Although personnel assigned to each group generally perform functions of that particular group, there is a substantial overlap that occurs in solving problems. Most personnel are trained to perform multiple tasks and can be assigned to other groups on a temporary or permanent basis, if necessary.

3.2. FACILITY AND EQUIPMENT DESCRIPTION

3.2.1. Physical Facility

The WPCP Group operates and maintains facilities at 4 centralized sites as well as pump stations and regulators throughout the collection system. The main treatment plant, maintenance facility, laboratory, and office complex are located at 2601 Dwenger Avenue. The CSO Treatment Facilities are located across the Maumee River just north of the main treatment plant. The biosolids facilities are located at 6202 Lake Avenue. The WPCP also operates a small satellite package treatment plant north of the City near the intersection of County Line Road and Tonkel Road.

3.2.2. Equipment

The WPCP Group owns and has ready access to a sizable arsenal of equipment to perform maintenance and repair work for nearly every foreseeable situation. Equipment was purchased based on the needs of the WPC Utility's treatment systems including difficult to access areas. As such, the WPCP Group owns a wide array of equipment. The equipment currently owned is set forth in Appendix A.

3.3. INFORMATION SYSTEMS

The WPCP Group uses several electronic databases to track operational and maintenance activities.

Intellutions is a human-graphical interface software package that allows plant operators to monitor the operations of most of the mechanical and electrical equipment in the combined sewer collection and CSO treatment system. It provides an interface between the operators and remote sensors.

I historian is a software package that saves the date sent to Intellution. This allows analysis and reporting of information derived from the data.

A computerized maintenance management system (CMMS) is operated by the Maintenance area to keep an inventory of equipment, access parts information, schedule maintenance activities and maintain a history of maintenance performed.

A laboratory information management system (LIMS) is operated to collect, analyze, and report laboratory results.

A material safety data sheet (MSDS) database is maintained by the WPCP Group.

All these information systems are operated and maintained by personnel in the WPCP Group with support from various information technology consultants.

4. **TREATMENT, PUMPING, AND REGULATOR FACILITIES DESCRIPTION**

4.1. WPC TREATMENT PLANT DESCRIPTION

Flow collected in the Fort Wayne sewer collection system is conveyed to the Fort Wayne Water Pollution Control Plant for treatment. The plant is an activated sludge wastewater treatment plant utilizing preliminary, primary, and secondary treatment, as well as effluent polishing and reaeration. Plant effluent is discharged to the Maumee River. Solids are processed using two-stage anaerobic digestion and lagoon dewatering.

Wastewater enters the plant through an 84-influent sewer. Wastewater flow is divided between two influent channels equipped with separate traveling screens that mechanically removed solids in the wastewater of one quarter inch and larger. Screenings are conveyed to a dumpster and are disposed of in a landfill.

Four raw wastewater pumps are used to pump raw wastewater from a wetwell located after the screens up to a channel leading to two vortex grit removal systems. The firm capacity of the station is 60 mgd with one pump out of service.

Wastewater is processed through one of two cyclone shaped concrete grit removal structures. The vortex system contains rotating paddles to allow the grit to settle in the bottom. Grit is pumped, dewatered and sent to a landfill.

Following grit removal, an effluent conduit carries wastewater to a primary diversion chamber. The diversion chamber divides the influent flow so that about approximately 67 percent of the flow is directed to Primary Tanks 1 through 5, and approximately 33 percent of the flow is directed to Primary Tanks 6 through 8.

The primary tanks are rectangular and have two passes per tank. Each tank is provided with chain and flight type sludge collectors and cross collectors for sludge removal. Raw sludge is removed and pumped to the digesters. Primary effluent from tanks 1 through 4 is directed to Aeration Tanks 6 through 9. Primary effluent from tanks 5 through 8 is directed to Aeration Tanks 1 through 5. Iron salts are added to the primary effluent flow for phosphorus removal in secondary treatment.

The aeration tanks are rectangular. Air is supplied to each tank from blowers in the blower building. Waste activated sludge is removed, as needed, from the return sludge flow and routed to the centrifuge building. Fine bubble type diffusers are used for aeration. Mixed liquor from Aeration tanks 1 through 5

flows to Final Settling Tanks 1 through 5. Mixed liquor from Aeration Tanks 6 through 9 flows to Final Settling Tanks 6 through 9. Wastewater flows are divided so that 53 percent of the flow is treated in tanks 1 through 5, and 47 percent of the flow is treated in tanks 6 through 9 in secondary treatment.

The Centrifuge building receives waste activated sludge, removing water to produce a five percent sludge which is pumped to the digesters. The water removed from the sludge is returned to a sewer and reenters the headworks of the plant.

The final settling tanks use rim feed/rim collection weirs for influent and effluent flows. Each tank is provided with a revolving sludge collector mechanism. Activated sludge is removed from the final tanks and returned to the aeration tanks using centrifugal pumps. Secondary effluent is discharged to a chlorine contact tank for disinfection.

Chlorinated effluent is directed to Pond 3 for effluent polishing. During periods of the year as required by the NPDES permit Pond 3 final effluent is dechlorinated. Final effluent from Pond 3 also passes through three reaeration chambers to increase dissolved oxygen levels before discharging to the Maumee River.

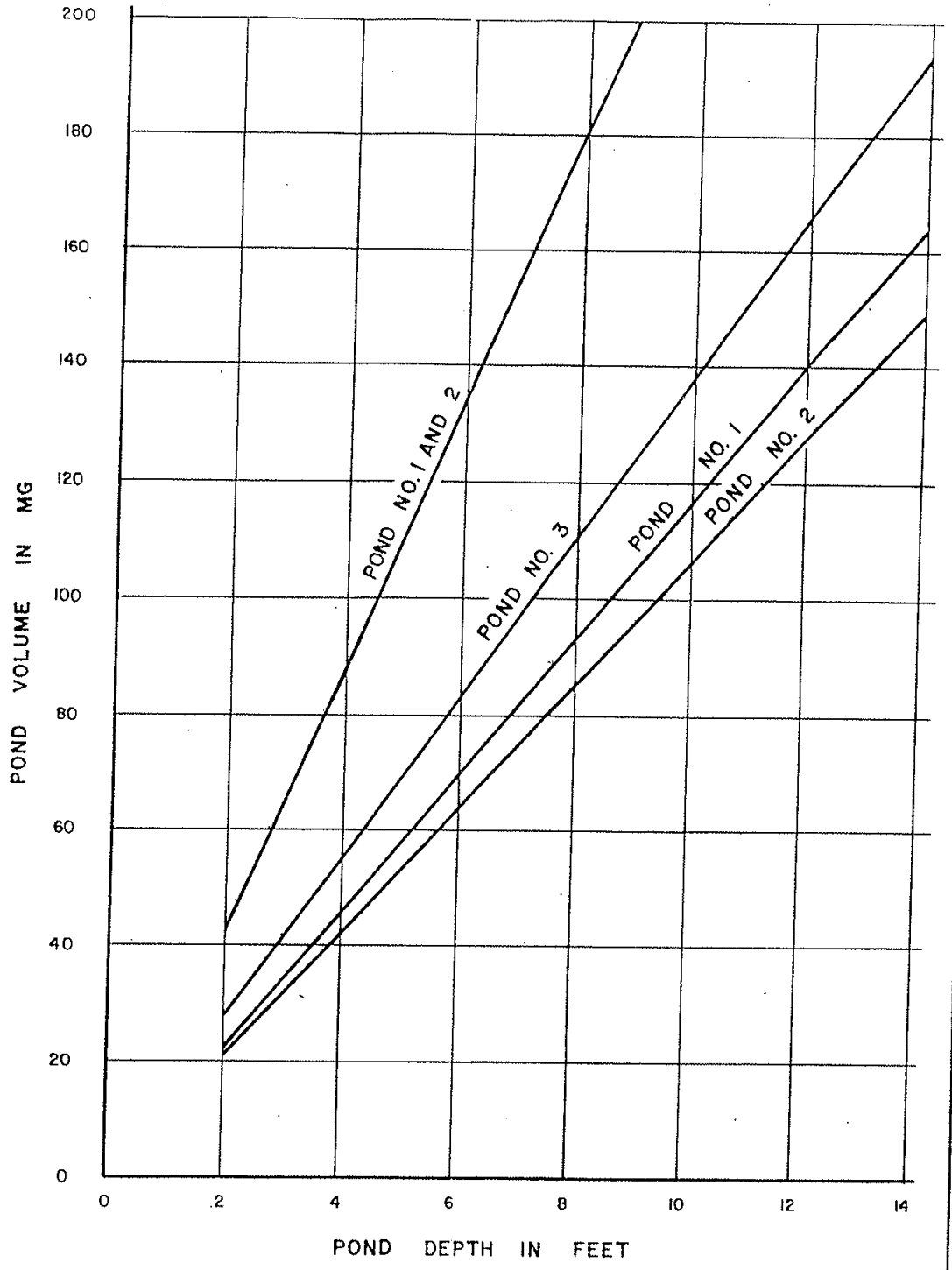
Five anaerobic digesters with floating covers are used for digestion of the primary and waste activated sludges. Four digesters serve as primary digesters, while the remaining one serves as a secondary digester. The digesters are heated using boilers, heat exchangers, and recirculation equipment. Gas produced from digestion is collected from each digester, compressed, and stored in pressure gas storage vessels, and used in boilers for maintaining mesophilic temperatures in the digesters as well as heating the facility. Excess digester gas is flared off in a waste gas burner.

Digested sludge is pumped from the secondary digester to the sludge storage lagoons for dewatering. Sludge is processed at the lagoons by drying, wind rowing, and screening into a class A biosolids that is available as a topsoil additive.

4.2. CSO FACILITIES

When the flow of combined sewage in the Wayne Street Interceptor exceeds the capacity of the WPC Treatment Plant it causes surcharging in the interceptor. The interceptor overflows when the surcharge exceeds 3’ at the Plant Regulator structure. This overflow combines with overflows from the Glasgow Regulator on the south side of the Maumee and is transported under the Maumee River to the CSO Facilities wet well through two 96” pipes.

Figure 4-1



TERMINAL PONDS - VOLUME / DEPTH RELATIONSHIPS

HENRY B. STEEG & ASSOCIATES
A DIVISION OF HOWARD NEEDLES TAMMEN & BERGENDOFF
ENGINEERS
INDIANAPOLIS, INDIANA

IV/4

FIGURE IV/3
CITY OF FORT WAYNE, INDIANA

The wet well at the CSO Facility is sized at 550,000 gallons capacity. A trash rack is installed at the inlet end of the wet well. A permanent metal building houses the CSO pumps.

Two Allis-Chalmers 90" X 60" YDD VRFM mixed flow vertical turbine pumps pump the combined sewage to a rectangular channel which allows the flow to proceed by gravity to CSO Pond No. 1.These pumps are designed to operate at 105,000 GPM at 45 TDH. If the flow to the wet well exceeds the capacity of the pumps it is released directly to the Maumee River through 3 openings in the back of the wet well.

4.3. CSO PONDS

CSOs pass through 2 ponds on the north side of the Maumee River. It is possible to operate the CSO ponds at a variety of depths and volumes. It should be recognized that greater depths mean greater volumes, and therefore, higher loadings per surface area, without a corresponding increase in oxygen transfer capability from surface reaeration. The surface area governs surface reaeration rates because the oxygen transfer capability remains substantially the same. This may adversely affect efficiency of stabilization of organic matter and help to create unwanted conditions such as odors, rising sludge, or other undesirable effects.

Table 4-1 gives pond volumes for possible operating points. For depths of combined sewage between those given, refer to Figure 4-1 for the various pond volume vs. depth relationships.

TABLE 4-1
POND AREA AND VOLUME CHARACTERISTICS

	Terminal Pond No.1	Terminal Pond No.2
Surface Area	33.5 Ac.	29 Ac.
Volume at 3-foot depth	38 MG	33 MG
Volume at 4-foot depth	50 MG	43 MG
Volume at 5-foot depth	61 MG	54.5 MG
Volume at 7-foot depth	84 MG	75 MG
Volume at 10-foot depth	118 MG	106 MG
Volume at 13-foot depth	152 MG	138 MG

4.4. PUMPING FACILITIES

There are two types of pump stations in the combined sewer system (CSS). The first type is located downstream of the regulator and pumps overflows. The second type pumps dry weather flows to a gravity interceptor that takes it to the treatment plant.

4.4.1. Overflow Pump Stations

There are 5 overflow pump stations in Fort Wayne's CSS. They are briefly described below.

4.4.1.1. Brown Street Pump Station

The Brown Street Pump Station is located at 1800 Brown Street. A mechanical bar screen precedes two 200 horsepower pumps with each pump having a rated capacity of 20,000 gpm at 28' of head. The station wet well has horizontal dimensions of 29' x 31' and is equipped with a dewatering pump system. The dewatering system is designed to discharge any CSO storage in the wet well back into the interceptor system when capacity is available.

4.4.1.2. Nebraska Pump Station

The Nebraska Pump Station is located at 1100 Camp Allen Drive. It contains two 125 horsepower pumps with each pump having a rated capacity of 25,000 gpm at 15' of head. The station wet well has horizontal dimensions of 22.33' x 15.33' and is equipped with a dewatering pump system. The dewatering system is designed to discharge any CSO storage in the wet well back into the interceptor system when capacity is available.

4.4.1.3. Third Street Pump Station

The Third Street Pump Station is located just east of the Third Street/Calhoun Street intersection. A mechanical bar screen precedes 4 pumps. Each pump pumps at a different rate. These rates range between 14,000 gpm and 23,000 gpm. The station wet well has horizontal dimensions of 40.33' x 40.33' and is equipped with a dewatering pump system. The dewatering system is designed to discharge any CSO storage in the wet well back into the interceptor system when capacity is available.

4.4.1.4. Griswold Pump Station

The Griswold Pump Station is located at 1900 Griswold Drive. It contains 2 pumps that pump at approximately 400 gpm. The station wet well has horizontal dimensions of 17.33' x 17.33'.

4.4.1.5. Morton Street CSO Pump Station

The Morton Street CSO Pump Station is located at 1614 Edgewater Avenue. It contains four 150 horsepower pumps with room for a fifth pump. Each pump is rated at 19,000 gpm. The station wet well has horizontal dimensions of 40' x 34.5' and is equipped with a dewatering pump system. The dewatering system is designed to discharge any CSO storage in the wet well back into the interceptor system when capacity is available.

4.4.2. Dry Weather Flow Pump Station

There is one dry weather flow pump station. The Morton Street Dry Weather Pump Station is located at 1614 Edgewater Avenue. A comminuter precedes two 25 horsepower pumps. Each pump is rated at 2,500 gpm.

4.5. MECHANICAL REGULATORS

There are two types of mechanical regulators that are kept operational by the WPCP Group. The first type uses floats to control mechanical regulator gates. The second uses depth sensors, such as float switches to control hydraulic regulator gates.

4.5.1. Float Actuated Mechanical Regulator Gates

Currently, there are 7 regulators that have active float actuated mechanical regulator gates. There SIP #s and locations are provided below:

SIP #	**Location**
P06-119	At the intersection of Anthony Blvd. and Wayne St.
L06-438	At the intersection of Wayne St. and Fairfield Ave.
N06-007	At the intersection of Hanna St. and Wayne St.
K06-285	At the intersection of Nelson St. and Wayne St.
K11-163	Just west of the intersection of Rudisill Blvd and Broadway
M10-150	Just east of the intersection of Third St. and Calhoun St.
K07-171	At the west end of the alley just north of Wildwood Ave.

4.5.2. Float Switch Actuated Hydraulic Regulator Gates

Currently, there are 2 regulators that have active float switches to activate hydraulic regulator gates. There SIP #s and locations are provided below:

SIP #	**Location**
K15-009	On Hartman Rd. approximately 300’ south of Westover Rd.
L19-018	Southeast of 5340 Century Ct.

5. CSO FACILITY OPERATION AND MAINTENANCE PROGRAM

As is seen from the discussion in Section 3, the WPCP Group is involved in a number of wide-ranging activities including but not limited to operating and maintaining the wastewater treatment plant, the package treatment plant, biosolids facilities, mechanical regulators, CSO facilities and pumping stations.

For purpose of clarity, it should be stated that the discussion presented in Section 3 covers all the activities of the WPCP Group. The following topics emphasize aspects of the WPCP Group's activities associated with the CSO Facilities and Ponds.

Area	Section
Operations	5.1
Maintenance	5.2
Regulatory Reporting	5.3

This plan will be subject to modification by the Director of the WPC Utility to account for changes in circumstances such as changes in the configuration of WPC Utility facilities, the purchase of new equipment, changes in regulatory requirements, the development of new technologies, or changes in industrial standards/best management practices.

5.1. CSO POND FACILITIY OPERATIONS

The CSO Facilities receive CSOs from the Glasgow Regulator and from overflows of the Wayne Street Interceptor intermittently during wet weather. There is no flow into the facilities the majority of the time. But, during some wet weather, flows can exceed 100 million gallons during a 24 hour period. This can be followed a day or two later with additional flows of tens of millions of gallons.

The CSO Facility is not sized to provide a constant level of treatment for this range of flows. Low flows and long detention times produce fairly high quality effluent. During flow through conditions there appears to not be much difference in the quality of CSO Facility influent and CSO Facility effluent.

The City is currently working with IDEM to characterize the Ponds as CSO storage facilities that would function primarily as temporary storage of CSO and then bled back to the WPCP when capacity is available.

The types of processes that may take place in the CSO Facilities when flow characteristics allow are described below.

5.1.1. CSO Pond Process of Removal Description

The process of removal of suspended and organic matter from combined sewage requires specific physical, chemical, and biological conditions to support the biochemical process reactions.

5.1.1.1. Physical Process Mechanisms

Physical removal mechanisms work primarily to settle out suspended matter that would otherwise pass on to the receiving waters. The CSO ponds have been channelized by the use of sheet pilings and other structures for flow direction control. The use of sheet steel pilings serves to control the direction of the wastewater flow, acting to prevent short-circuiting of flow, and, coupled with the control of the water depth (by effluent sluice gate control), determines the bulk velocity of flow through any segment of the treatment ponds. The depth of water kept in a pond is fixed by the position of the effluent sluice gates. The flow through the pond is controlled by the CSO Facilities pumping rate. The combination of these two operational constraints determines the degree of removal of suspended solids from the pond influent. The percentage of removal for suspended solids will vary with the loading rates. The solids loading rate for combined sewage ranges from 500 to perhaps 125,000 pounds per acre per day. The detention period for the CSO Facility effluent can be sufficiently long to have rapid biological uptake of soluble organic wastes. The solids generated by this biological activity in the pond system can settled out before the effluent leaves the ponds. By this mechanism, a significant part of the waste loading to the ponds can be removed.

5.1.1.2. Biological Removal Mechanisms

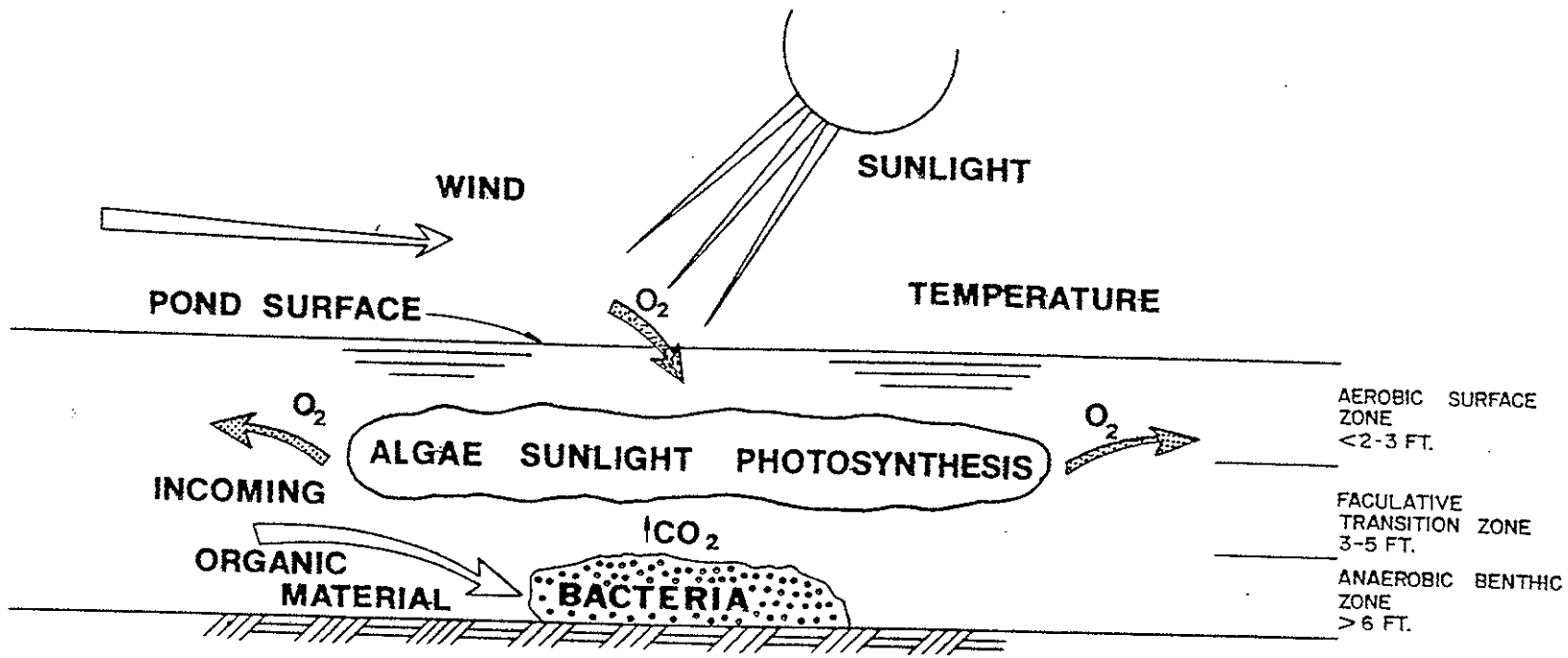
The Ponds are a type of oxidation Pond (i.e., depending upon natural reaeration rates as the dissolved oxygen source). As oxidation ponds, these ponds can be operated as facultative ponds by virtue of the depth of

water and loading rates to the pond. The removal mechanisms in a facultative pond vary with depth. The first action is associated with the solids removal by sedimentation described above. As the solids settle to the bottom, an anaerobic layer of decomposing biological solids builds up on the bottom of the pond. These decomposing solids undergo a reaction similar to that in an anaerobic digester with subsequent release of methane gas. A portion of the solids always remain as incompletely digested material. The soluble organic material and colloidal solids which are either brought in fresh by the incoming wastewater or scoured from the bottom of the pond by intra-pond mixing due to wind, or water turnover caused by seasonal temperature changes of the waters, are broken down by bacterial action in the aerobic upper layers of the pond.

Some of this material is incorporated into the bacterial cells that grow and with settling add to the organic matter at the bottom anaerobic zone of the pond. The CO_2 given off by the bacteria, along with the bicarbonate of the incoming wastewater and the CO_2 introduced into the pond by surface reaeration resulting from wind action is utilized by algae in the presence of sufficient sunlight and inorganic nutrients such as phosphorus, nitrogen, and iron to produce oxygen and additional algae cells.

This photosynthesis reaction takes place during the daylight hours. At night, algae use oxygen and oxidize some of the organic compounds produced and stored while undergoing photosynthesis reactions. The symbiotic relationship between bacteria and algae recycles carbon materials that were originally settled out as suspended solids. The net effect of this carbon cycling mechanism is to:

1). Cause a deposition of the solids originally present in the wastewater;
2). Cause some stabilization of the organic load of the combined sewage by bioconversion to carbon dioxide or methane lost to the atmosphere:



BIOLOGICAL PROCESSES
IN TERMINAL POND

HENRY B. STEEG & ASSOCIATES
A DIVISION OF HOWARD NEEDLES TAMMEN & BERGENDOFF
ENGINEERS
INDIANAPOLIS, INDIANA

FIGURE IV/5
CITY OF FORT WAYNE, INDIANA

IV/14

Figure 5-1

3) Cause a conversion of much of the soluble inorganic and organic material into bacterial and algal cell material.

Figure 5-1 displays the various biological processes that can occur within the ponds.

To properly be termed a biological synthesis system where the generation of biological solids is the objective of the organic removal process, the removal of the settled solids once settled in the ponds is important. If the solids are permitted to accumulate over an extended period of time, the solids settled will eventually use up a large portion of the pond's available detention time, increase the flow-through velocity, decrease the solids removal efficiency, and increase the amount of organic material that is resolubilized. To prevent filling the ponds with sludge solids over time, a dredge can be provided to remove the settled solids every few years.

A reasonable estimate of the pond solids detention time can be made by utilizing the concept of Mean Cell Residence Time, since this parameter represents the time that a hypothetical particle will theoretically remain in the terminal pond undergoing treatment. Solids detention time can be defined in terms of the suspended solids that are stored in the volume available for the wastewater divided by the rate of wastage of suspended solids (primarily in the pond effluent). Since the concentration of suspended solids in a treatment pond very nearly always equal those in the effluent, the relationship for solids detention time simplifies to that for the hydraulic detention time:

$$\text{Solids Detention Time in Days} = \text{Theoretical Hydraulic Detention Time} = \frac{\text{Volume of Terminal Pond In MG}}{\text{Pond Effluent Flow Rate In MGD}}$$

This assumes no pond influent during this period.

As already indicated above, the volume available for treatment is primarily a function of the pond depth. The control of pond depth is possible as outlined in the section following.

5.1.2. CSO Pond Control Depth

Per the original pond design intent, depending on pond depth and influent flow rate, the pond can be operated in different treatment modes. Each treatment mode has certain advantages and disadvantages associated with the process control. Since consideration of pond depth is essential regardless of the hydraulic through-put rate, the operation of the pond can be conveniently classified by operating depth alone. In the ensuing discussion, CSO pond depth will be the determining control parameter considered while recognizing that hydraulic detention time also is a very important parameter for pond performance control. It should be noted that the City operational experience of the Ponds has shown that the consistent use of the Ponds for treatment has not been consistent or effective overall.

5.1.2.1. Oxidation Pond Mode – Depth Less than 5 Feet

The operation of the CSO ponds at water depths less than 5 feet is termed the “Oxidation Pond” mode. In this configuration, natural convection and wind-generated vertical mixing can reasonably supply the entire oxygen demand for the pond most of the time if the organic loading is not excessive (say, less than 500 pounds organic loading per acre per day). This mixing action tends to blend the aerated upper pond layers with the deoxygenated lower layers. By this natural mixing action, aerobic conditions are maintained throughout the pond without the reliance on the algae-bacteria symbiotic relationship.

Another advantage of pond depths less than 5 feet is that the mobile forms of algae usually have no particular advantage over other free-swimming or suspended organisms. Unless the water gets very still, allowing these mobile microorganisms to migrate toward the light zone at the water surface, these organisms will be intermingled with the lowest layers

as well as the upper layers. The mixing tends to break up the development of thick, obnoxious algae blooms which block out light energy to bottom layer organisms which, in turn, tend to promote a well-balanced pond flora and fauna that can be reasonably expected to stabilize the pond influent wastes to a high degree of efficiency.

Several climatic conditions can create problems for this mode, even at low organic loadings. Wind shear can create rolling wavers over the pond surface, particularly if the wind is blowing directly down a channelized segment. These waves can stir up bottom sediments and add relatively large quantities of organic and inorganic suspended matter to the pond effluent. These suspended solids usually have a significant BOD_5 associated with them as well. The growth of aquatic plants to the shallow bottom can create problems with flow control and sedimentation rates.

5.1.2.2. Facultative Pond Mode – 7 to 10 Feet

At a depth of approximately 7 feet, the distance from the water surface to the pond bottom is sufficiently great to essentially preclude reoxygenation of the pond bottom under all but the most turbulent of operating conditions. Due primarily to the absence of vertical mixing currents under most operational conditions, the ponds begin to stratify into three distinct zones. These zones are related to the thermal stratification of water with depth to an extent. However, the best explanation for the existence of these zones is related to the aerobic conditions found at the different depth zones.

A surface zone will form immediately after the quiescent settling of wastewater commences. This zone will contain the highest dissolved oxygen down to 18 to 24 inches in depth. Microbiological activity will be concentrated on photosynthesis and/or bacterial respiration in this zone. Much of the wastewater stabilization of soluble organic matter will occur in this upper-most zone.

From 2 to perhaps 5 or 6 feet, a profile of pond dissolved oxygen with depth will show a tendency toward decreasing D.O. with depth over this range. This zone is usually termed the "Transition" Zone, presumably as a reflection of its intermediate position between the aerobic "surface" zone and the anaerobic "benthic" zone. Microorganisms found in this zone will be facultative organisms undergoing inorganic substrate respiration typically utilizing nitrate, carbonate, or sulfate as an oxygen source for organic energy utilization. This zone is also characteristically quiescent, and the physical removal mechanism of sedimentation tends to dominate over the biokinetic utilization of organic substrate. Occasionally, some upwards mobility can be observed through this zone but, generally the mixing action characterizing the surface zone action characterizing the surface zone is absent here.

The lower zone in this depth range usually occupies the bottom-most two or perhaps three feet. This zone is sometimes the "benthic" zone or the "bottom" zone. It is characterized by bottom-dwelling organisms that are either strict anaerobes or facultative adaptive organisms. The bottom sediments provide the source of volatile solids preferred as substrate by these bottom-dwellers. Generation of soluble volatile acids, gases such as carbon dioxide, ammonia, and methane, and inert stabilized sludge solids characterize this zone activity. Being temperature sensitive, these bottom-dwellers tend to slow their work in the winter months and may be stimulated by warming weather in the springtime. This stimulation may result in bottom sediment turn-over floating sludge, malodors, or cloudy effluent from the bottom stabilization zone.

Because of the mixed population of microorganisms in a facultative pond, coupled with a larger volume of pond storage utilized (resulting strictly from the increased depth of operation), the facultative pond can typically handle higher organic loadings than the oxidation pond discussed above.

5.1.3. Optimization of Hydraulic Detention Time

As mentioned earlier, the objective of the operation of the CSO ponds is to maximize the hydraulic detention time in the ponds. This strategy serves two useful purposes:

1) It maximizes sludge detention time and therefore increases the organic removal;
2) It "spreads out" surges in flow to the ponds by utilizing the available pond volume as a flow damping treatment unit.

Each pond has a point of inflow where the influent wastewater is introduced into the treatment pond. The wastewater begins a period of travel. By the time the original wastewater reaches the effluent structure, it has been subjected to extensive sedimentation and biological oxidation reactions to reduce the waste load to the receiving waters. The sluice gates in each of the pond effluent structures can be moved up or down to vary the water surface elevation in the pond. To do this, the top of the sluice gate acts as a broad-crested rectangular weir obeying a modified weir equation. By monitoring sluice gate position and pond level, a discharge rate may be computed.

Figure 5-2 shows the locations of the effluent sluice gates.

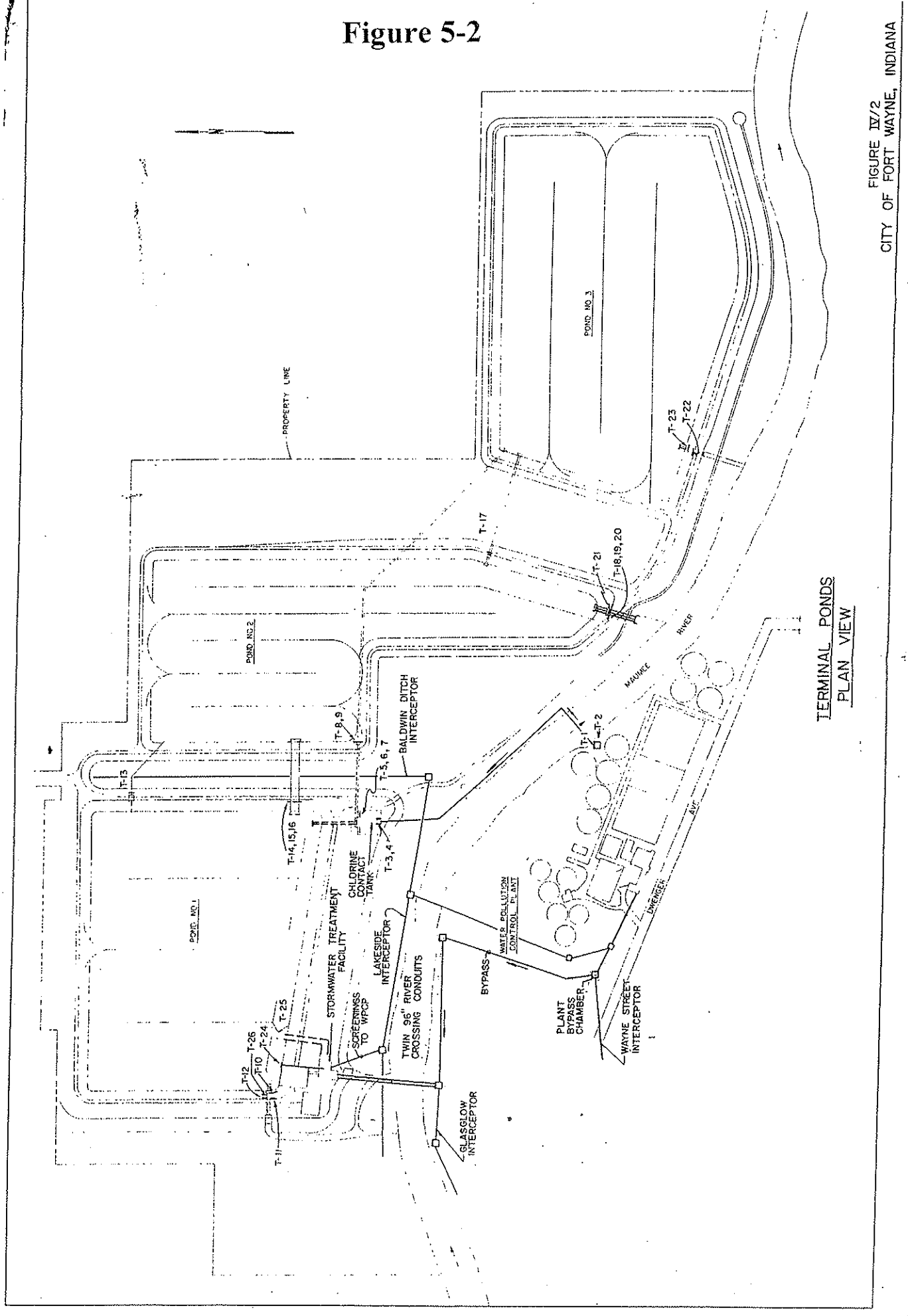
The sluice gates are provided with electric operators and manual hand cranks. The gates are operated locally.

5.1.4. CSO Pond Flow Routing

To maximize CSO pond performance, it is desirable to operate the ponds in tandem. This technique utilizes the gravity head differential between two ponds to transfer the wastewater from one pond to another. There are several process considerations for multiple pond operation. Such requirements as pond depth and hydraulic detention time, prevention of short circuiting, pond levee maintenance, alternative flow routing, and holding volume of ponds. The water surface level in each terminal pond is monitored to regulate the detention time in the pond. Vertical adjustment of the sluice gates allows the plant operators to adjust the level in the CSO ponds.

Extended detention times in the pond system are possible by operating the ponds in series. Through the use of the channelization sheet piling flow control structures, the flow is

Figure 5-2


TERMINAL PONDS
PLAN VIEW
FIGURE IV/2
CITY OF FORT WAYNE, INDIANA
POND NO. 1
POND NO. 2
POND NO. 3
PROPERTY LINE
MAUMEE RIVER
T-1
T-2
T-3, 4
T-3, 6, 7
T-8, 9
T-13
T-14, 15, 16
T-17
T-18, 19, 20
T-21
T-22
T-23
T-24
T-25
T-26
T-10
T-12
T-11
BALDWIN DITCH INTERCEPTOR
CHLORINE CONTACT TANK
STORMWATER TREATMENT FACILITY
SCREENINGS TO WPCP
LAKESIDE INTERCEPTOR
TWIN 96" RIVER CROSSING CONDUITS
GLASGLOW INTERCEPTOR
BYPASS
WATER POLLUTION CONTROL PLANT
PLANT BYPASS CHAMBER
WAYNE STREET INTERCEPTOR
LIVERMORE AVE.

controlled in each pond by permitting flow in a predetermined direction only. Other means are installed to control flow direction in the ponds.

5.1.5. Operation of CSO Ponds During River Flood Stage

During periods of high water, the levees for the CSO ponds can be subject to high level flood waters which might undermine portions of the levees surrounding the ponds. Since this condition is not likely to persist indefinitely, a temporary procedure should be implemented when the Weather Bureau warns of flood conditions on the Maumee River.

Briefly, this procedure involves using the CSO Facility pumps to raise the water surface in the ponds to a level that approximately equals the maximum anticipated crest of the river. If the hydrostatic water surface on each side of the levee is the same, the likelihood of undermining the levee is greatly reduced. Because this procedure will only be necessary when wet weather causes flooding, the necessity of using the CSO Facility pumps for control of CSOs is likely.

5.2. CSO FACILITY MAINTENANCE

5.2.1. Preventative Maintenance

Each facility was designed for a specific set of site conditions. Therefore the facility has a unique set of components and unique set of maintenance requirements.

Establishing the preventative maintenance program started during the design and constructions of the facility. Layout and equipment selection was made with maintenance in mind. At the end of construction an O&M manual was prepared and delivered to those who have O&M responsibilities.

In the WPC Utility the Maintenance area of the WPCP Group has responsibility for maintenance of facilities. Upon receiving the O&M manuals parts, maintenance procedures, and maintenance frequency information was entered into the CMMS. The CMMS then becomes a reference for parts and automatically generates work orders for preventative maintenance. The initial maintenance procedures and schedules have been refined by actual experience.

Preventative procedures and schedules are kept in the WPCP Group's CMMS.

5.2.2. Emergency/Reactive Maintenance

Plant operators monitor the status sensors and alarms for the equipment used in the CSO facility. When they detect an emergency situation they normally use a walkie talkie to contact the maintenance supervisor and create a work request in the CMMS. Emergency procedures manuals are maintained at the three plant operator's stations.

The maintenance supervisor assesses the situation and normally uses a walkie talkie to notify a work leader of the situation. The maintenance supervisor then converts the work request into a work order assigning the work to a specific crew. The maintenance supervisor also notifies the person responsible for regulatory notifications if necessary.

The work leader assembles the required crew and equipment and performs the required repairs. After the work is completed the activities are recorded in the CMMS.

5.2.3. Maintenance Management System

As discussed in Section 3 the WPCP Group uses a CMMS to inventory equipment and their parts, maintain maintenance procedures, establish maintenance schedules, prioritize work request, produce work orders, and record maintenance history.

5.2.4 The Maintenance Process

<u>Request for Maintenance Work</u>
The request can come from other WPC Utility Groups, other WPCP Sections, WPC Utility Contractors, City Departments as well as from homeowners. The "Request for Service" is entered into the CMMS database and referred to a Supervisor. The information entered is:

Who requested the work,
What type of work is to be done,
Where is the work to be performed (address),
When the request was made, and

Why the work is being requested.

Assigning the Work

The Supervisor can review the current work order request to determine the type of work required and the priority of the work. The supervisor can then assign the work to the appropriate crew.

Databases

The WPCP Group utilizes a CMMS to handle work orders.

Information from each complaint or work order is entered into the maintenance database. Maintenance datebase fields are as follows:

- Work Order Tracking Number
- Date Work Order Created
- Crew to be assigned to Work Order
- Problem Location
- Date/Time Service Request Received
- Employee who Received the Request
- Priority
- Map area
- Department responsible for work
- Comments to instruct crew

This information is saved as a pending job. Maintenance work can then be assigned by type of work and/or other considerations.

Once the maintenance work order is completed the data from the work sheets is entered into a data base. This database is able to compute job cost.

5.3 REGULATORY REPORTING

The City is authorized to discharge combined sewage overflows from Outfalls 002 and 003. The City is required to monitor effluent limitations according to the issued National Pollutant discharge Elimination System (NPDES) permit No. IN0032191, effective December 1, 2004. Discharges from the aforementioned outfalls are reported on Monthly Report of Operations (MRO)

and Discharge Monitoring Reports (DMR). These two forms are submitted on the 28th of each month.

Pond 1 (Outfall 003) and Pond 2 (Outfall 002) take in combined sewer flows in excess of the mechanical treatment plant capacity. Samples are taken when discharges occur. The following table lists the parameters and limits for Outfall 002 and Outfall 003 effluent.

The City is currently working with IDEM to characterize the Ponds as CSO storage facilities that would function primarily as temporary storage of CSO flows. The CSO would be bled back to the WPCP when capacity is available. Upon completion of this change and construction of the bleedback facilities, the outfalls for Pond 1 (003) and Pond 2 (Outfall 002) would be considered the same as the other CSO outfalls in Attachment "A" of the NPDES permit and no water quality parameters will be required to be monitored.

Parameter	Monthly Average	Weekly Average	Measurement Frequency	Sample Type
Influent Flow	Report (MGD)	Report (MGD)	Daily (when discharge occurs)	24-Hr. Total
Effluent Flow	Report (MGD)	Report (MGD)	Daily (when discharge occurs)	24-Hr. Total
$CBOD_5$	25 mg/l	40 mg/l	Daily (when discharge occurs)	Grab
TSS	30 mg/l	45 mg/l	Daily (when discharge occurs)	Grab
Parameter	**Daily Minimum**	**Daily Maximum**	**Measurement Frequency**	**Sample Type**
pH	6.0	9.0	Daily (when discharge occurs)	Grab
Parameter	**Monthly Average**	**Daily Maximum**	**Measurement Frequency**	**Sample Type**
E. coli (April 1-Oct. 31)	125 col/100 ml	235 col/100 ml	Daily (when discharge occurs)	Grab

The effluent flow shall be reported in hours of duration and shall not exceed one-third (1/3) of the receiving stream flow.

Record and report, on the MRO, the average rate of discharge from the pond and the stream flow during the discharge period.

6. CSS PUMPING OPERATION AND MAINTENANCE PROGRAM

As is seen from the discussion in Section 3, the WPCP Group is involved in a number of wide-ranging activities including but not limited to operating and maintaining the wastewater treatment plant, the package treatment plant, the biosolids facilities, CSO treatment facilities, pumping stations and mechanical regulators.

For purpose of clarity, it should be stated that the discussion presented in Section 3 covers all the activities of the WPCP Group. The following topics emphasize aspects of the WPCP Group's activities associated with the CSS Pumping Facilities:

Area	Section
Operations	6.1
Maintenance	6.2

This plan will be subject to modification by the Director of the WPC Utility to account for changes in circumstances such as changes in the configuration of WPC Utility facilities, the purchase of new equipment, changes in regulatory requirements, the development of new technologies, or changes in industrial standards/best management practices.

6.1. CSS PUMPING FACILITIES OPERATION

6.1.1. CSO Pump Stations

Upstream regulators regulate how much flow goes to the treatment plant to prevent overloading the treatment plant. When flows exceed the capacity of the interceptor or what can be treated at the treatment plant, excess flows are directed to the rivers.

These regulators were designed with two outlets to the river. One allowed overflows to flow into the river by gravity. However, if the river stage was high flow couldn't get into the river and basement and street flooding occurred. Pump stations were built to solve this problem. When the river stage was high, overflows went to the pump stations and were pumped into the river.

The sluice gates on the gravity overflow pipes have been closed to force all overflows through the pump stations. The pump flow rates are measured and pump run times are used to determine the start, duration, and volume of the overflows. This simplifies the task of

trying to measure flows in submerged gravity discharge pipes at these locations.

The pumps are sized by the engineers that design the stations. Control algorithms are determined by the design engineers, but are often fine tuned by the Maintenance Area of the WPCP Group. Pump alarm and operating data is sent to the WPCP via radio where it is stored in a database. Alarm signals are monitored by the WPCP Group's Operations area. If pump station problems are observed, this group requests maintenance services from the WPCP Maintenance area. Emergency operating procedures for a variety of situations are located in the control rooms of the WPCP.

Pump operational data is reviewed and analyzed by the WPCM Group. They also prepare monthly CSO reports.

6.1.2. Dry Weather Pump Stations

The dry weather pump stations serve the same purpose as a regular collection system pump station. It lifts dry weather flow from a low elevation to a higher elevation so that is can flow by gravity to the treatment plant.

The pumps are sized by design engineers to handle peak dry weather flow plus whatever additional flow the downstream sewer and treatment facilities can handle. Control algorithms are determined by the design engineers, but are often fine tuned by the Maintenance Area of the WPCP Group. Pump alarm and operating data is sent to the WPCP via radio where it is stored in a database. Alarm signals are monitored by the WPCP Group's Operations area. If pump station problems are observed, this group requests maintenance services from the WPCP Maintenance area. Emergency operating procedures for a variety of situations are located in the control rooms of the WPCP.

6.2. CSS PUMPING FACILITIES

6.2.1. Preventative Maintenance

A schedule listing the preventative maintenance (PM) and inspection frequency is maintained for each station. PM activities typically include, but are not limited to the following:

- Check operation of pumps

- Report pump run times when applicable
- Check floats or float sticks, clean as necessary
- Check wet well and clean when necessary
- Change charts and check ink levels when applicable
- Check for unusual vibration, bearing heat, belt wear, pipe leaks etc.

Records of all PM activities are kept on file in a computerized maintenance management system (CMMS).

6.2.2. Emergency/Reactive Maintenance

Plant operators monitor the status sensors and alarms for the equipment used in the CSS pump stations. When they detect an emergency situation they normally use a walkie-talkie to contact the maintenance supervisor and create a work request in the CMMS. Emergency procedures manuals are maintained at the three plant operator's stations.

The maintenance supervisor assesses the situation and normally uses a walkie-talkie to notify a work leader of the situation. The maintenance supervisor then converts the work request into a work order assigning the work to a specific crew. The maintenance supervisor also notifies the person responsible for regulatory notifications if necessary.

The work leader assembles the required crew and equipment and performs the required repairs. After the work is completed the activities are recorded in the CMMS.

6.2.3. Maintenance Management System

As discussed in Section 3 the WPCP Group uses a CMMS to inventory equipment and their parts, maintain maintenance procedures, establish maintenance schedules, prioritize work request, produce work orders, and record maintenance history.

6.2.4. The Maintenance Process

<u>Request for Maintenance Work</u>
The request can come from other WPC Utility Groups, other WPCP Sections, WPC Utility Contractors, City Departments as well as from homeowners. The "Request for Service" is entered into the CMMS database and referred to a Supervisor. The information entered is:

Who requested the work,
What type of work is to be done,
Where is the work to be performed (address),
When the request was made, and
Why the work is being requested.

Assigning the Work

The Supervisor can review the current work order request to determine the type of work required and the priority of the work. The supervisor can then assign the work to the appropriate crew.

Databases

The WPCP Group utilizes a CMMS to handle work orders.

Information from each complaint or work order is entered into the maintenance database. Maintenance datebase fields are as follows:

- Work Order Tracking Number
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- Problem Location
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- Employee who Received the Request
- Priority
- Map area
- Department responsible for work
- Comments to instruct crew

This information is saved as a pending job. Maintenance work can then be assigned by type of work and/or other considerations.

Once the maintenance work order is completed the data from the work sheets is entered into a data base. This database is able to compute job cost.

7. MECHANICAL REGULATOR OPERATION AND MAINTENANCE PROGRAM

As is seen from the discussion in Section 3, the WPCP Group is involved in a number of wide-ranging activities including but not limited to operating and maintaining the wastewater treatment plant, the package treatment plant, the biosolids facilities, CSO treatment facilities, pumping stations and mechanical regulators.

For purpose of clarity, it should be stated that the discussion presented in Section 3 covers all the activities of the WPCP Group. The following topics emphasize aspects of the WPCP Group's activities associated with the mechanical regulators:

Area	Section
Operations	7.1
Maintenance	7.2

This plan will be subject to modification by the Director of the WPC Utility to account for changes in circumstances such as changes in the configuration of WPC Utility facilities, the purchase of new equipment, changes in regulatory requirements, the development of new technologies, or changes in industrial standards/best management practices.

7.1. MECHANICAL REGULATOR OPERATION

7.1.1. Float Actuated Gate – Mechanical Regulator

The principle of these regulators is fairly simple. A dam high enough to divert the dry weather maximum flow is built in the subbasin sewer. Just up stream from this dam an opening is built in the subbasin sewer that allows dry weather flow to be directed to the WPCP for treatment. A movable shutter or shear gate is located in this opening. A cast iron float is located in a separate chamber. The water level in this chamber is regulated by a tell tale pipe connected to the subbasin sewer. The float raises and lowers with the chambers (subbasin sewer's) water level. The float is connected to the above shear gate and is the force which raises or lowers it.

With low flow in the subbasin sewers the float is down, the shutter or gate is up and the entire flow is diverted to the WPCP interceptor. In times of rain as the flow in the subbasin sewers rises the float also rises, the gate starts to close and the flow diverted to the interceptor is reduced. If the flow in the city sewer continues to rise, the float

may rise high enough to close the gate completely and all flow goes to the river.

The two ways in which these regulators can be adjusted are as follows:

* Remove Fillers – Many of the regulators have fillers inserted in the throat of the gate to cut down the size of the opening. This also cuts down the amount of flow thru the gate. At such time as it is necessary to increase the flow, this can be done by removing a filler plate.

* Change Float Stops – The flow thru the regulator can be increased by raining the stops on the float supports. This increases the head on the opening before the gate starts to close. Whenever any change is made in the level of the float stops, the wire cable between the gate and the shaft must also be adjusted to keep the cable taut.

The regulators are the only connection between the subbasin sewers and the sewage treatment plant interceptor and as such must be closely watched and carefully guarded. If all the regulators are closed, no sewage reaches the treatment plant. If all the regulators are wide open, and excessive amount of flow will reach the plant during storms. To insure the correct flow at the plant at all times the regulators must be properly adjusted and regularly inspected.

7.1.2. Float Switch Actuated Hydraulic Gate – Mechanical Regulator

These regulators operate similar to the float actuated gate - mechanical regulators. The main differences are that the gates are controlled by float switches rater than floats and the gates are hydraulically operated rather than mechanically operated.

7.2. MECHANICAL REGULATOR MAINTENANCE

Without constant attention two problems can occurred. First sticks, rags, debris etc. may clog the gate opening and force the dry weather sewage into the river. Second during storms such debris may be caught under the gate and hold it open thus allowing an excess storm flow to enter the interceptor.

Both of these conditions are undesirable, unnecessary, and indicate an inefficient management of the treatment plant and its system of interceptors. Both types of regulators require regular operational

inspections and maintenance. This includes the cleaning out of openings to the gate on the subbasin side and cleaning out tell-tale pipes. In addition to operational inspections and maintenance by WPCP, the City WPCM department also inspects regulators daily as part of its monitoring program for CSO events.

Float actuated gate – mechanical regulators require the following additional activities:

- Flush out float chambers to keep free of deposits.
- See if gates slide evenly over their seats.
- Lubricate the two shaft bearings, the two gate bearings, and the rope at least twice a year.

Float switch actuated – mechanical regulators require the following additional maintenance activities.

- Clean off the float switches.
- See if gates slide evenly over their seats.
- Check electrical connections
- Check the level of hydraulic fluids.
- Lubricate all moving parts.

APPENDIX A

Appendix A

Water Pollution Control Plant
Equipment List

Vehicle ID#	Year	Description	Model #	Serial #
15151	1995	Ford - Cheryl	Taurus Wagon	1FALP57U8SG205340
18152	1998	Ford - Jim	Taurus	1FAFP57U4WG207301
20509	2000	Ford - Brian	F-250	1FTNY2116YEC11028
20510	2000	Ford - IPS	Express 1500	1GCFG15W411140850
21511	2001	Ford	F-350	1FDSW35L11EA87208
22019	2002	Ford - Maintenance	F-250	1FTNX21LX2ED27579
22025	2002	Ford - Route Truck	F-350	1FDSX31L22ED27578
22026	2002	Ford - Route Truck	F-350	1FDWX37F72ED27577
25123	1995	Ford	F-250	2FTHF25H6SCA31681
25306	1995	Ford - IPS	E-250	1FTJE34H8SHA91644
25312	1995	Jeep - Chris	Cherokee	1J4FJ67SL663322
26508	1996	Ford - Parts Truck	F-250	1FTH25H2TEB13872
26510	1996	Chevrolet - Maintenance	C-2500	1GCGK24R5TZ187779
36512	2006	Ford - Dump Truck	F-450	1FDXF46P56EC94415
37165	1987	Navistar	Sewer Jet	1HTLVUXN3HHA4786
39115	1999	International - Dump Truck	4900	1HTSDAAR8XH665274
48183	1998	Navistar	Vactar	1HTGMAAR8WH5451
51060	2001	Case - Backhoe	580M	JJG0308838
55241	1995	Grove - Crane	RT528C	82276
60108	1990	Sreco - Hydraulic Pump		13430
75061	2005	Genie - Lift	45/25	Z452505-24303
85038	1975	Mudcat Dredger		
87040	1977	Ford Tractor		C51000
		Volvo - Loader	L-30	BW5657-401
		Godwin - Hydraulic Pump	HS-150	4311422
		Godwin - Hydraulic Pump	HS-150	2226636
		Olympian Generator	D50P2	OLY00000LNPF03764
		Olympian Generator	D50P6	OLY00000JNNS01412
		Cushman - Utility Vehicle	Type G	898789
		Gator - Gas 2 x 4 - Utility Vehicle		
		Gator - Diesel 6 x 4 - Utility Vehicle		W006X4D033837
		Gator - Diesel 6 x 4 - Utility Vehicle		W006X4009237
		Kubota - Utility Vehicle		
		Kubota - Utility Vehicle	RTV-900G-K	KRTV900A41018131

EXHIBIT A-3

City Utilities
2006 Budget
Expenses by Cost Center (excluding interest and depreciation)

Direct Expenses	2003 Actual	2004 Actual	2005 Budget	2006 Submitted	% incr decr
Wastewater					
Plant					
Biosolids	1,012,896	1,122,581	1,051,929	954,373	
Operations	1,547,221	1,526,900	1,959,678	1,796,772	
Maintenance	761,794	669,322	654,716	741,995	
Laboratory	300,886	288,498	264,876	245,848	
Administrative	894,087	892,030	862,113	980,557	
Industrial Pre-Treatment	194,375	203,324	228,015	265,530	
Combined Storm Stations	302,911	484,648	643,310	640,822	
Flood Control	14,846	8,885	40,344	40,565	
Electrical	383,878	389,525	345,471	344,868	
Capital Labor	28,503	33,692	-	-	
Total Plant	5,441,399	5,619,403	6,050,452	6,011,330	-0.6%
Maintenance					
Sanitary Maint.	1,030,495	1,115,431	1,165,828	1,492,489	
Combined Maint.	1,670,051	1,715,348	2,189,067	1,901,906	
General Expense	605,224	668,179	735,405	787,206	
Capital Labor	8,644	10,753	-	-	
Total Maint	3,314,414	3,509,711	4,090,300	4,181,601	2.2%
Engineering					
Planning & Design	765,157	913,588	1,035,127	759,490	
Capital Labor	65,523	29,705	-	-	
Total Engineering	830,680	943,293	1,035,127	759,490	-26.6%
Administrative Expenses					
CILT	1,475,904	1,583,512	1,504,227	1,793,085	
Bad Debts	341,112	572,992	465,000	465,000	
Outside Services	215,621	261,745	306,700	228,500	
Miscellaneous	189,502	283,804	166,248	-	
Building Rent	122,886	128,120	130,471	132,400	
Total Administrative Expenses	2,345,025	2,830,172	2,572,646	2,618,985	1.8%
Total Direct Expenses	11,931,517	12,902,579	13,748,525	13,571,406	-1.3%
Reconcile to G&A expenses:					
Deduct Capital Labor	(102,670)	(74,150)	(175,981)	(225,934)	
Deduct Capital Burden	(71,668)	(123,111)	(89,850)	(147,784)	
Deduct 50% of shared CSO	(1,107,708)	(1,230,358)	(1,601,428)	(1,470,016)	
Deduct Lime disposal costs	-	-	(369,000)	(380,072)	
Add 50% of meter related expenses	369,979	407,241	631,035	908,920	
Add Shared Administrative Costs	3,812,551	3,776,677	4,091,201	4,321,168	
Miscellaneous	-		-	-	
G&A Expenses	14,832,000	15,658,878	16,234,502	16,577,688	
Wastewater Expenses (in $millions)					
Direct WPC Plant	5.249	5.325	5.607	5.566	
Sewer Maintenance	3.444	3.734	4.055	4.143	
Transfer Combo to Storm	(1.108)	(1.230)	(1.601)	(1.470)	
Transfer Meters in from Water	0.370	0.407	0.631	0.909	
Sewer Admin	0.861	1.176	1.068	0.824	
Sewer CILT	1.476	1.584	1.504	1.793	
Sewer Planning and Design	0.728	0.887	0.879	0.492	
Shared Shared Admin	3.813	3.777	4.091	4.321	
	14.832	15.659	16.235	16.578	

SEWER UTILITY
574 COMP ENGINEERING
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4111	SALARIES & WAGES,REGULAR LABOR	-	-	136,318	166,502	30,184
4131	PERF - EMPLOYERS SHARE	-	-	10,161	11,290	1,129
4132	FICA - EMPLOYERS SHARE	-	-	11,958	12,795	837
4134	HEALTH & LIFE INSURANCE	-	-	21,000	23,550	2,550
4136	UNEMPLOYMENT COMPENSATION	-	-	78	82	4
4138	CLOTHING ALLOWANCE	-	-	150	300	150
413A	PERF - EMPLOYEES/PD BY CITY	-	-	4,690	5,018	328
4140	PRODUCTIVITY BONUS	-	-	-	750	750
480O	W O LABOR	-	-	(27,934)	(16,549)	11,385
TOTAL 4100		-	-	156,421	203,738	47,317
4291	SMALL TOOLS		-	100	200	100
TOTAL 4200		-	-	100	200	100
4314	CONSULTANT SERVICES	-	-	300,000	50,000	(250,000)
4317	INSTRUCTIONAL SERVICES	-	-	1,500	1,500	-
431J	TECHINICAL SERVICES	-	-	200	500	300
431K	SEMINAR FEES	-	-	1,700	2,400	700
4324	TRAVEL EXPENSES	-	-	2,400	3,900	1,500
4333	BULEPRINTING	-	-	300	-	(300)
4342	LIABILITY INSURANCE	-	-	-	4,519	4,519
4367	MAINT AGREEMNT FOR SOFTWARE	-	-	1,700	1,800	100
4391	SUBSCRIPTION & DUES	-	-	250	250	-
4392	LICENSES	-	-	-	200	200
4808	W O BURDEN	-	-	(19,554)	(11,584)	7,970
TOTAL 4300		-	-	288,496	53,485	(235,011)
GRAND TOTAL		-	-	445,017	257,423	(187,594)

SEWER UTILITY
574 SPLT ENGINEERING
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4111	SALARIES & WAGES,REGULAR LABOR	-	27,173	-	96,578	96,578
4125	OVERTIME PREMIUM		-	-	2,516	2,516
4126	EDUCATIONAL INCENTIVE		-	-	1,000	1,000
4131	PERF - EMPLOYERS SHARE	-	2,829	-	6,807	6,807
4132	FICA - EMPLOYERS SHARE	-	3,068	-	7,715	7,715
4134	HEALTH & LIFE INSURANCE	-	-	-	15,700	15,700
4136	UNEMPLOYMENT COMPENSATION	-	-	-	48	48
4138	CLOTHING ALLOWANCE	-	-	-	300	300
413A	PERF - EMPLOYEES/PD BY CITY	-	1,213	-	3,025	3,025
4140	PRODUCTIVITY BONUS		408	-	750	750
480O	W O LABOR	-	-	-	(76,213)	(76,213)
TOTAL 4100		-	34,690	-	58,226	58,226
4214	SAFETY SUPPLIES	7,742	-	-	-	-
TOTAL 4200		7,742	-	-	-	-
4314	CONSULTANT SERVICES	-	41,249	85,848	37,200	(48,648)
431J	TECHINICAL SERVICES	-	-	-	200	200
431K	SEMINAR FEES	-	-	-	1,000	1,000
4324	TRAVEL EXPENSES	-	-	-	600	600
4333	BULEPRINTING	58	-	-	-	-
4342	LIABILITY INSURANCE	1,587	2,989	1,437	-	(1,437)
4392	LICENSES	-	-	-	400	400
4399	OTHER SERVICES & CHARGES	-	-	-	100	100
4808	W O BURDEN	-	-	-	(53,349)	(53,349)
TOTAL 4300		1,645	44,238	87,285	(13,849)	(101,134)
GRAND TOTAL		9,387	78,928	87,285	44,377	(42,908)

SEWER UTILITY
574 SRRD ENGINEERING
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4111	SALARIES & WAGES,REGULAR LABOR	23,150	36,233	98,691	102,856	4,165
4112	BONUS	463	434	-	-	-
4125	OVERTIME PREMIUM		-	-	2,000	2,000
4131	PERF - EMPLOYERS SHARE	3,555	3,692	6,415	7,128	713
4132	FICA - EMPLOYERS SHARE	3,617	3,698	7,550	8,079	529
4134	HEALTH & LIFE INSURANCE	6,500	6,500	14,000	15,700	1,700
4136	UNEMPLOYMENT COMPENSATION	25	25	49	51	2
4137	WORKMANS COMPENSATION	1,461	-	-	-	-
4138	CLOTHING ALLOWANCE	-	152	-	450	450
413A	PERF - EMPLOYEES/PD BY CITY	1,521	1,582	2,961	3,168	207
4140	PRODUCTIVITY BONUS		-	-	750	750
480O	W O LABOR	(17,572)	(11,847)	(78,953)	(64,723)	14,230
TOTAL 4100		**22,721**	**40,471**	**50,713**	**75,459**	**24,746**
4213	COMPUTER SUPPLIES	-	-	-	500	500
4247	INSTRUCTIONAL SUPPLIES	-	-	500	500	-
4291	SMALL TOOLS	92	110	50	-	(50)
TOTAL 4200		**92**	**110**	**550**	**1,000**	**450**
4317	INSTRUCTIONAL SERVICES	-	-	1,000	1,000	-
431J	TECHINICAL SERVICES	-	-	300	400	100
431K	SEMINAR FEES	-	835	1,600	1,600	-
4321	FREIGHT,EXPRESS & DRAYAGE	4	7	-	-	-
4324	TRAVEL EXPENSES	-	220	2,000	2,000	-
4326	MILEAGE	-	-	400	-	(400)
4333	BULEPRINTING	222	133	150	-	(150)
4342	LIABILITY INSURANCE	1,457	1,498	1,455	3,013	1,558
4391	SUBSCRIPTION & DUES	-	-	800	800	-
4808	W O BURDEN		-	(23,107)	(45,306)	(22,199)
TOTAL 4300		**1,683**	**2,694**	**(15,402)**	**(36,493)**	**(21,091)**
GRAND TOTAL		**24,496**	**43,275**	**35,861**	**39,966**	**4,105**

SEWER UTILITY
574 SSCD ENGINEERING
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4111	SALARIES & WAGES,REGULAR LABOR	80,632	100,397	50,685	-	(50,685)
4112	BONUS	463	434	-	-	-
4131	PERF - EMPLOYERS SHARE	7,648	7,899	4,595	-	(4,595)
4132	FICA - EMPLOYERS SHARE	8,117	8,415	5,407	-	(5,407)
4134	HEALTH & LIFE INSURANCE	13,000	13,000	7,000	-	(7,000)
4136	UNEMPLOYMENT COMPENSATION	52	52	35	-	(35)
4138	CLOTHING ALLOWANCE	-	-	150	-	(150)
413A	PERF - EMPLOYEES/PD BY CITY	3,274	3,385	2,121	-	(2,121)
4140	PRODUCTIVITY BONUS	463	434	-	-	-
480O	W O LABOR	(19,522)	(8,946)	(3,534)	-	3,534
TOTAL 4100		**94,126**	**125,069**	**66,459**	**-**	**(66,459)**
4213	COMPUTER SUPPLIES	9	-	-	-	-
4299	OTHER MATERIALS & SUPPLIES	-	60	-	-	-
TOTAL 4200		**9**	**60**	**-**	**-**	**-**
4314	CONSULTANT SERVICES	55,567	332,150	100,000	-	(100,000)
4317	INSTRUCTIONAL SERVICES	-	-	500	-	(500)
431J	TECHINICAL SERVICES	144	-	200	-	(200)
431K	SEMINAR FEES	60	300	1,400	-	(1,400)
4324	TRAVEL EXPENSES	12	891	2,200	-	(2,200)
4331	PRINTING OTHR THN OFFICE SUPPL	293	27	-	-	-
4333	BULEPRINTING	296	86	100	-	(100)
4342	LIABILITY INSURANCE	-	-	2,873	-	(2,873)
4367	MAINT AGREEMNT FOR SOFTWARE	1,432	1,553	-	-	-
4391	SUBSCRIPTION & DUES	72	52	150	-	(150)
4392	LICENSES	-	100	-	-	-
4808	W O BURDEN	-	-	(2,707)	-	2,707
TOTAL 4300		**57,876**	**335,159**	**104,716**	**-**	**(104,716)**
GRAND TOTAL		**152,010**	**460,288**	**171,175**	**-**	**(171,175)**

SEWER UTILITY
574 SWPD ENGINEERING
2006 BUDGET COMPARISON

	2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
					-
TOTAL 4100	-	-	-	-	-
					-
TOTAL 4200	-	-	-	-	-
4314 CONSULTANT SERVICES	542,162	310,259	140,000	150,000	10,000
TOTAL 4300	542,162	310,259	140,000	150,000	10,000
GRAND TOTAL	542,162	310,259	140,000	150,000	10,000

SEWER UTILITY
531 PLANT OPERATIONS
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4111	SALARIES & WAGES,REGULAR LABOR	1,767,119	1,878,903	1,952,906	1,958,361	5,455
4112	BONUS	45,315	64,702	-	-	-
4115	PARTTIME,TEMP & SEASONAL WAGES	-	5,068	16,551	16,065	(486)
4125	OVERTIME PREMIUM	178,354	154,799	159,300	163,800	4,500
412L	LONGEVITY PAY	18,978	19,464	21,523	19,616	(1,907)
4131	PERF - EMPLOYERS SHARE	145,861	153,737	143,633	146,670	3,037
4132	FICA - EMPLOYERS SHARE	153,953	161,987	170,310	167,456	(2,854)
4134	HEALTH & LIFE INSURANCE	325,000	305,500	343,000	390,800	47,800
4136	UNEMPLOYMENT COMPENSATION	932	932	1,002	992	(10)
4137	WORKMANS COMPENSATION	21,427	38,050	38,050	36,496	(1,554)
4138	CLOTHING ALLOWANCE	2,094	4,115	6,000	10,000	4,000
413A	PERF - EMPLOYEES/PD BY CITY	24,790	24,503	18,161	17,874	(287)
4140	PRODUCTIVITY BONUS	-	-	41,000	33,000	(8,000)
4802	HYDRANTS	(20,334)	(15,156)	-	-	-
4803	METER INVENTORY	(107,697)	(108,146)	-	-	-
4805	TRANSFER 50% OF COMB SEW/STORM		-	(186,280)	(186,684)	(404)
480O	W O LABOR	(36,164)	(135,222)	(44,240)	(45,416)	(1,176)
TOTAL 4100		2,519,628	2,553,235	2,680,916	2,729,030	48,114
4212	STATIONARY & PRINTED FORMS	990	853	1,000	1,000	-
4213	COMPUTER SUPPLIES	1,511	2,382	1,500	3,000	1,500
4214	SAFETY SUPPLIES	8,691	7,125	8,500	7,000	(1,500)
4216	HOMELAND SECURITY SUPPLIES	3,541	-	-	-	-
4219	OTHER OFFICE SUPPLIES	8,081	9,075	8,250	10,000	1,750
4220	OFFC FURN/EQUIP UNDER 500	9,461	3,950	6,000	10,750	4,750
4221	PIPE, CASTINGS, FITTINGS	10,639	13,540	12,000	15,500	3,500
4231	GASOLINE	10,470	11,704	12,000	13,000	1,000
4232	DIESEL FUEL / FUEL OIL	37,169	51,073	46,000	92,000	46,000
4233	OIL	5,154	7,282	9,000	13,200	4,200
4234	TIRES	-	-	-	500	500
4242	ANIMAL SUPPLIES	790	633	1,000	1,000	-
4244	LABORATORY SUPPLIES	28,610	42,583	34,000	53,700	19,700
4245	LANDSCAPING & GREENHSE SUPPLIE	830	173	2,000	2,000	-
4246	HOUSEHOLD & CLEANING SUPPLIES	3,084	4,995	4,000	7,000	3,000
4247	INSTRUCTIONAL SUPPLIES	895	3,106	1,700	1,000	(700)
4248	CHEMICALS	1,491	1,476	5,800	10,800	5,000
4252	SODA ASH	-	-	100	100	-
4255	CHLORINE	34,227	37,278	60,000	80,000	20,000
425A	FERRIC CHLORIDE	113,459	97,173	80,000	108,000	28,000
4261	BLDG EQUIP REPAIR PARTS	9,058	26,830	18,000	14,000	(4,000)
4263	OTHER EQUIP REPAIR PARTS	110,273	63,692	83,800	88,000	4,200
4271	GRAVEL	5,503	5,951	8,500	9,000	500
4277	CEMENT & CONCRETE	-	-	250	500	250
4278	LUMBER	500	793	250	750	500
4291	SMALL TOOLS	10,333	16,786	15,300	12,300	(3,000)
4292	HARDWARE	1,552	4,842	4,100	6,750	2,650
4293	PAINT	1,181	2,906	4,600	5,750	1,150
4299	OTHER MATERIALS & SUPPLIES	5,134	3,773	2,400	7,850	5,450
4807	TRANSFER 50% OF COMB SEW/STORM		-	(15,625)	(18,700)	(3,075)
TOTAL 4200		422,625	419,978	414,425	555,750	141,325

SEWER UTILITY
531 PLANT OPERATIONS
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4311	LEGAL SERVICES	-	-	-	-	-
4312	MEDICAL SERVICES	2,647	7,274	4,000	4,000	-
4313	GARAGE SERVICES	-	-	-	-	-
4314	CONSULTANT SERVICES	3,490	780	-	-	-
4315	APPRAISALS & INSPECTIONS	459	530	1,400	1,400	-
4316	RECREATIONAL SERVICES	-	-	-	-	-
4317	INSTRUCTIONAL SERVICES	14,773	20,445	35,000	38,000	3,000
4319	VETERINARY SERVICES	219	1,089	800	-	(800)
431B	GARAGE OVERHEAD	-	-	-	-	-
431F	FALSE ALARM FEES	-	-	-	-	-
431J	TECHINICAL SERVICES	-	-	200	200	-
431K	SEMINAR FEES	4,132	7,015	12,100	8,700	(3,400)
431P	LAB SERVICES	17,786	15,020	30,800	28,000	(2,800)
431Q	RADIO SHOP SERVICES	676	33	500	500	-
431S	SOFTWARE TRAINING	520	-	1,000	-	(1,000)
431W	CAR WASH SERVICES	-	139	100	100	-
4321	FREIGHT,EXPRESS & DRAYAGE	322	1,749	400	900	500
4322	POSTAGE	939	1,153	1,200	1,400	200
4323	TELEPHONE & TELEGRAPH	26,372	24,985	30,000	30,000	-
4324	TRAVEL EXPENSES	2,258	6,190	20,000	12,300	(7,700)
4326	MILEAGE	1,063	409	2,100	2,100	-
432C	CELL PHONE	11,024	11,578	8,000	10,000	2,000
4331	PRINTING OTHR THN OFFICE SUPPL	-	57	250	250	-
4332	PUBLICATION OF LEGAL NOTICES	675	2,059	500	1,000	500
4333	BULEPRINTING	193	3	100	500	400
4341	PROPERTY INSURANCE	108,213	108,472	113,835	99,646	(14,189)
4342	LIABILITY INSURANCE	59,868	64,445	67,721	66,512	(1,209)
4345	AUTOMOBILE INSURANCE	2,997	3,439	3,197	1,789	(1,408)
4351	ELECTRICITY	931,353	901,111	1,247,000	1,007,000	(240,000)
4352	NATURAL GAS	12,877	18,601	28,500	107,575	79,075
4353	WATER	29,347	37,765	27,000	45,000	18,000
4354	SEWAGE	3,128	2,379	3,000	35,000	32,000
4356	SOLID WASTE DISPOSAL	-	-	20,000	30,000	10,000
4358	HAZARDOUS WASTE DISPOSAL	940	430	1,300	1,100	(200)
4359	STORM WATER SEWER	2,289	2,298	2,152	2,152	-
4363	CONTRACTED BUILDING REPAIRS	122,687	103,879	96,000	103,000	7,000
4365	JANITORIAL & LAUNDRY SERVICES	70,174	59,241	70,000	60,000	(10,000)
4369	CONTRACTED SERVICES	802,215	870,241	787,100	655,500	(131,600)
436A	MAINT AGREEMNT FOR HARDWARE	2,290	2,748	3,200	3,500	300
436N	GARAGE SERVICES-NON TARGET	1,961	1,009	4,844	4,840	(4)
436S	CONTRCTD SERVICES-homeland sec	835	-	-	-	-
436T	GARAGE CONTRACT - TARGET	31,150	30,289	40,867	64,006	23,139
4374	OTHER EQUIPMENT RENTAL	10,450	20,012	18,200	14,700	(3,500)
4377	CC BUILDING PARKING	16	-	-	-	-
4391	SUBSCRIPTION & DUES	1,405	1,513	1,500	2,200	700
4392	LICENSES	24,690	24,737	25,100	25,450	350
4399	OTHER SERVICES & CHARGES	15	859	-	18,150	18,150
439E	EXTRAORDINARY SERVICES	-	-	-	-	-
4808	W O BURDEN		-	(30,567)	(30,883)	(316)
4813	TRANSFER 50% OF COMB SEW/STORM		-	(119,750)	(120,488)	(738)
4814	LIME SLUDGE COST TRANSFER		-	(369,000)	(380,072)	(11,072)
TOTAL 4300		2,306,448	2,353,974	2,189,649	1,955,027	(234,622)
GRAND TOTAL		5,248,701	5,327,187	5,284,990	5,239,807	(45,183)

SEWER UTILITY
532 MAINTENANCE
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4111	SALARIES & WAGES,REGULAR LABOR	1,203,595	1,397,953	1,519,265	1,831,603	312,338
4125	OVERTIME PREMIUM	59,319	80,497	57,500	57,500	-
412L	LONGEVITY PAY	7,765	7,269	10,017	10,285	268
4131	PERF - EMPLOYERS SHARE	95,507	106,877	107,668	132,344	24,676
4132	FICA - EMPLOYERS SHARE	101,358	113,075	126,717	149,990	23,273
4134	HEALTH & LIFE INSURANCE	256,206	286,000	301,000	376,800	75,800
4136	UNEMPLOYMENT COMPENSATION	664	664	768	871	103
4137	WORKMANS COMPENSATION	17,531	31,970	31,970	31,417	(553)
4138	CLOTHING ALLOWANCE	12,947	11,497	22,000	25,000	3,000
413A	PERF - EMPLOYEES/PD BY CITY	40,878	45,804	49,694	58,819	9,125
4140	PRODUCTIVITY BONUS	23,927	25,041	34,650	37,950	3,300
480O	W O LABOR	(653,325)	(815,037)	(21,320)	(23,033)	(1,713)
4802	HYDRANTS	(106,269)	(110,906)	-	-	-
4803	METER INVENTORY	(808,374)	(727,865)	-	-	-
4805	TRANSFER 50% OF COMB SEW/STORM		-	(585,529)	(624,013)	(38,484)
TOTAL 4100		251,729	452,839	1,654,400	2,065,533	411,133
4212	STATIONARY & PRINTED FORMS	575	772	1,200	1,200	-
4213	COMPUTER SUPPLIES	3,088	-	1,250	1,250	-
4214	SAFETY SUPPLIES	9,336	12,985	17,000	18,000	1,000
4219	OTHER OFFICE SUPPLIES	3,934	3,546	3,000	3,000	-
4220	OFFC FURN/EQUIP UNDER 500	2,289	978	3,000	3,000	-
4221	PIPE, CASTINGS, FITTINGS	45,902	26,019	106,000	106,000	-
4231	GASOLINE	23,504	28,678	20,500	25,625	5,125
4232	DIESEL FUEL / FUEL OIL	27,271	35,427	29,500	36,875	7,375
4241	MEDICAL & SURGICAL SUPPLIES	-	-	350	300	(50)
4245	LANDSCAPING & GREENHSE SUPPLIE	2,795	5,389	4,800	6,200	1,400
4246	HOUSEHOLD & CLEANING SUPPLIES	455	2,675	3,000	3,500	500
4247	INSTRUCTIONAL SUPPLIES	1,102	339	2,000	2,000	-
4248	CHEMICALS	57,189	21,039	36,000	36,000	-
4261	BLDG EQUIP REPAIR PARTS	1,651	334	1,700	1,700	-
4262	VEHICLE REPAIR PARTS	71	677	2,000	1,000	(1,000)
4263	OTHER EQUIP REPAIR PARTS	39,161	37,636	46,500	46,500	-
4271	GRAVEL	15,463	19,582	26,500	26,500	-
4272	BITUMINOUS MATERIALS	499	2,058	6,500	7,000	500
4277	CEMENT & CONCRETE	15,240	29,825	33,500	33,500	-
4278	LUMBER	(10)	-	1,900	1,400	(500)
4291	SMALL TOOLS	7,147	6,575	9,500	8,500	(1,000)
4292	HARDWARE	419	410	1,000	650	(350)
4293	PAINT	956	543	400	400	-
4299	OTHER MATERIALS & SUPPLIES	1,980	610	1,400	1,400	-
4807	TRANSFER 50% OF COMB SEW/STORM		-	(97,850)	(99,229)	(1,379)
TOTAL 4200		260,018	236,097	260,650	272,271	11,621

SEWER UTILITY
532 MAINTENANCE
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4312	MEDICAL SERVICES	6,722	7,737	7,200	5,800	(1,400)
4317	INSTRUCTIONAL SERVICES	5,765	3,500	2,600	500	(2,100)
431J	TECHINICAL SERVICES	-	96	400	400	-
431K	SEMINAR FEES	723	1,160	3,300	3,300	-
431Q	RADIO SHOP SERVICES	603	974	2,000	2,800	800
431Y	WATER METER TRANSFER	-	-	818,867	908,920	90,053
4321	FREIGHT,EXPRESS & DRAYAGE	19	-	250	150	(100)
4322	POSTAGE	196	329	600	350	(250)
4323	TELEPHONE & TELEGRAPH	3,547	3,065	2,500	2,500	-
4324	TRAVEL EXPENSES	58	6,610	7,500	6,500	(1,000)
4326	MILEAGE	-	-	325	125	(200)
432C	CELL PHONE	3,714	3,709	2,200	2,600	400
4331	PRINTING OTHR THN OFFICE SUPPL	84	45	100	225	125
4332	PUBLICATION OF LEGAL NOTICES	1,230	238	1,000	800	(200)
4333	BULEPRINTING	1,109	140	1,250	2,200	950
4341	PROPERTY INSURANCE	5,296	5,366	5,862	936	(4,926)
4342	LIABILITY INSURANCE	38,648	53,954	57,642	57,438	(204)
4345	AUTOMOBILE INSURANCE	12,689	17,868	18,783	10,315	(8,468)
4351	ELECTRICITY	9,379	10,096	9,400	10,000	600
4352	NATURAL GAS	6,037	12,756	21,000	23,100	2,100
4353	WATER	1,606	1,999	2,100	3,000	900
4354	SEWAGE	352	926	450	2,800	2,350
4356	SOLID WASTE DISPOSAL	5,017	11,877	29,700	29,700	-
4361	CONTRCTD BLDG & STRUCT REPAIR	16,695	6,091	12,000	6,000	(6,000)
4362	CONTRCTD VEHICLE REPAIRS	1,488	-	-	-	-
4363	CONTRACTED BUILDING REPAIRS	400	706	2,500	2,000	(500)
4364	CONTRD. GROUND & SURFACE RPR.	201,953	276,424	190,000	185,000	(5,000)
4365	JANITORIAL & LAUNDRY SERVICES	5,060	5,257	8,500	8,500	-
4369	CONTRACTED SERVICES	734,505	549,740	890,404	532,200	(358,204)
436A	MAINT AGREEMNT FOR HARDWARE	218	100	500	800	300
436N	GARAGE SERVICES-NON TARGET	12,105	19,028	9,500	9,500	-
436R	RIGHT OF WAY CUT PERMITS	9,925	6,770	7,000	7,000	-
436T	GARAGE CONTRACT - TARGET	131,880	132,036	151,510	158,108	6,598
4374	OTHER EQUIPMENT RENTAL	5,036	14,754	18,000	18,500	500
4375	OTHER RENTAL	2,446	1,954	2,800	2,800	-
4377	CC BUILDING PARKING	32	-	300	300	-
4391	SUBSCRIPTION & DUES	741	660	700	700	-
4392	LICENSES	-	250	325	325	-
4399	OTHER SERVICES & CHARGES	778	-	-	250	250
4808	W O BURDEN		-	(13,915)	(15,662)	(1,747)
4813	TRANSFER 50% OF COMB SEW/STORM		-	(596,394)	(420,902)	175,492
TOTAL 4300		**1,226,055**	**1,156,215**	**1,678,759**	**1,569,878**	**(108,881)**
GRAND TOTAL		**1,737,801**	**1,845,150**	**3,593,809**	**3,907,682**	**313,873**

SEWER UTILITY
533 ADMINISTRATION
2006 BUDGET COMPARISON

		2003 ACTUAL	2004 ACTUAL	2005 APPROVED	2006 REQUESTED	INCREASE (DECREASE)
4139	UTILITIES PENSION-EMPYR	797	(2,527)	-	-	
TOTAL 4100		797	(2,527)	-	-	-
TOTAL 4200		-	-	-	-	-
4311	LEGAL SERVICES	153,101	166,013	160,000	140,000	(20,000)
4314	CONSULTANT SERVICES	39,901	72,204	125,000	80,000	(45,000)
431C	AUDIT FEES	17,729	19,455	13,200	-	(13,200)
431D	BAD DEBT EXPENSE	318,556	522,400	440,000	440,000	-
4341	PROPERTY INSURANCE	9,089	36,946	10,248	9,162	(1,086)
4342	LIABILITY INSURANCE	-	346	-	-	-
4369	CONTRACTED SERVICES	168,663	169,534	156,000	-	(156,000)
4371	BUILDING RENTAL	116,930	127,717	130,471	132,400	1,929
4375	OTHER RENTAL	777	782	-	-	-
4383	PAYMENT OF AGENT FEES-BONDS	4,890	4,072	8,500	8,500	-
4399	OTHER SERVICES & CHARGES	392,535	432,834	25,000	25,000	-
439A	OPERATING TRANSFER OUT	1,475,904	1,583,512	1,504,227	1,793,085	288,858
439E	EXTRAORDINARY SERVICES	2,573	101,598	-	-	-
TOTAL 4300		2,700,648	3,237,414	2,572,646	2,628,147	55,501
GRAND TOTAL		2,701,445	3,234,887	2,572,646	2,628,147	55,501

EXHIBIT A-4

CITY OF FORT WAYNE

GRAHAM RICHARD, MAYOR

March 1, 2007

VIA CERTIFIED MAIL

Mr. Allan Batka
Environmental Engineer
Compliance Section (WC-15J)
USEPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604

Re: 2006 Annual Report of the City of Fort Wayne, Indiana (the "City")

Dear Mr. Batka:

This letter is to serve as the City's 2006 Annual Report submitted in compliance with Administrative Order No. V-W-03-AO-07 (the "Order") which the City understands supersedes and replaced the annual reporting requirement of Administrative Order No. V-W-96-AO-04. As with the City's prior Annual Reports, this Annual Report details the City's implementation of its Combined Sewer System Operational Plan (the "CSSOP") which was submitted to the United Stated Environmental Protection Agency ("USEPA") and the Indiana Department of Environmental Management ("IDEM") for approval on September 1, 1996, and provides updates regarding other ongoing sewer system activities of the City. As USEPA is aware, the City currently is working to significantly amend the previously submitted CSSOP.

Also similar to the previous Annual Reports submitted to your office, this Annual Report is organized to group each of the proposed CSSOP activities within one of the 6 overall strategies, which were also presented in the CSSOP. Specifically, the 6 strategies are as follows: (1) Involve the Public, (2) Control What Enters the Collection and Wastewater Treatment System, (3) Maintain the Collection and Wastewater System to Minimize Service Disruption, (4) Operate the Collection and Wastewater Treatment System so that the Maximum Conveyance and Treatment Capabilities are Utilized, (5) Determine if Applied Efforts Achieve the CSSOP's Goals, and (6) Determine if Additional or Revised Efforts are needed to Achieve the Established Goals. Past reports indicated that the objectives of each of the 6 strategies were either (a) adequately addressed by implemented programs, (b) in need of enhancement, or (c) under development. As demonstrated by this and prior Annual Reports, implemented programs adequately address each of the 6 strategies. Nonetheless, in accordance with the Order, the City intends to continue its submission of Annual Reports to your office demonstrating its continuous implementation until the closing of the Order.

STRATEGY 1: INVOLVE THE PUBLIC

The CSSOP identifies all of the following objectives to be achieved through this strategy.

- Involve the public in deciding how pollution reduction will be accomplished, as well as periodic updates on currently established programs.
- Ensure that water quality issues important to the public are addressed.
- Educate the public on the various aspects of the collection system so they will become familiar with its terminology and function.
- Gain public confidence.
- Educate the public about what goes into the nation's water through CSOs.

All of these objectives have been adequately addressed through the following activities, which have either been fully completed or, where appropriate, are being carried out through ongoing programs of the City.

1. SEWER ADVISORY GROUP: The Sewer Advisory Group ("SAG") is the successor to the Sewer Task Force ("STF"), a forum for citizens to participate with City Utility officials in selection of priorities and alternatives of sewer related issues. The SAG also serves to keep the City accountable for commitments made in order to gain support for a sewer revenue increase. Meetings are held on a bimonthly basis, or as needed. A committee of this kind was not required in Phase I, but the City felt it is necessary to involve the public as early as possible in the planning process. Prior agendas and minutes of SAG/STF are available upon request.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #8 (Public Notification) and the LTCP requirement for "Public Participation."
   CHANGES FOR 2007: None
   LEVEL OF IMPLEMENTATION: Fully implemented.
   PERFORMANCE MEASURE: 2006 agendas and meeting minutes on file.

2. BOARD OF PUBLIC WORKS: The City Board of Public Works (the "BPW") must give approval to capital expenditures. The BPW consists of three members appointed by the Mayor, one of which is a citizen. Meetings are taped and broadcast on public access television.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #8 (Public Notification)
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented.
   PERFORMANCE MEASURE: 2006 agendas and meeting minutes on file.

3. EDUCATIONAL FLYER/PROGRAM: The City's Public Information Office has developed informational fliers which include the following topics: (1) CSO impacts on Designated Uses; (2) Health Risks; (3) The Nature of Combined Sewer Systems and Why they Overflow; (4) Legal Requirements; and (5) Potential Costs for CSO

Abatement. Through the Allen County Partnership for Water Quality (ACPWQ): produced and distributed brochures on "Green Landscaping" and "Combined Sewer Overflows." These were distributed through ACPWQ website at www.acwater.org at the Partnership booth at the Three Rivers Festival, Allen County Fair and Black Expo, at the Fort Wayne booth at National Night Out, Camp Scott open house and in Fort Wayne utility and public works office. Three new "Water Matters" articles were developed for use by neighborhood associations in their newsletters and made them available on the Partnership website. Pet Waste, Responsible Auto Maintenance and Stormwater Friendly Lawn Care were the new topics in 2006.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #8 (Public Notification).
CHANGES FOR 2007: Possible development of other program presentations specific to development of the LTCP, if needed is determined.
LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
PERFORMANCE MEASURE: The distribution of informational fliers and program presentations at area neighborhood association and other public meetings as well as at a citizen's request.

4. GREAT AMERICA CLEAN UP: Educating the public on the nature of CSOs, their impacts, and the associated health risks is an important step to meeting the City's objectives. A "Great America Clean-up" event, sponsored by the City's Solid Waste Management Department, emphasizes general environmental issues and incorporates CSO education. Traditional activities include neighborhood trash pick-ups, flower planting, and graffiti removal. This year, the program included the "Riverbank Clean-up." A total of 3,429 individuals comprising of 153 groups participated in the cleanup. The City collected 76.45 tons of material from the 153 sites or projects during the cleanup. This forum increased citizens' awareness of CSO impacts and pollution control.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #8 (Public Notification).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Degree of public participation. The number of volunteers and material collected increased in 2006 from 2005.

5. CSO HOTLINE: The "CSO Hotline" provides recorded messages to the public about Combined Sewer Overflow and Water Quality issues. The CSO Hotline is updated in the spring, summer and fall on a weekly basis to provide the public with current known receiving water conditions including cautions about body contact during wet weather events. The CSO Hotline can be accessed at (260) 427-2297, which goes through an automated telephone system, Teloquent, which is managed by the Data Control Department. In addition to the CSO Hotline, the City has developed an enhanced and comprehensive CSO notification procedure that includes an automated email/telephone notification system to directly advise citizens of CSO

discharges. Citizens seeking direct notification of CSO events can receive individual notice (via email or, if necessary, telephonically) by either calling 260-427-1255 or through the City's website at: www.cityoffortwayne.org/new/water/where_cso.htm. The City issues a media release annually each March instructing individuals how to register for such notifications.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #8 (Public Notification).
CHANGES FOR 2007: None planned
LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
PERFORMANCE MEASURE: The number of calls received on the CSO Hotline and the number of information registration request received for direct CSO notification. The City received 222 calls to the CSO Hotline and no requests for direct CSO notifications in 2006.

6. CSO SIGNS: Notice signs were installed at each CSO Outfall and in many river access areas. Additional signs are also being installed in neighborhoods as requested by neighborhood organizations. Signs are checked during outfall and regulator inspections and repaired or replaced as necessary. As part of these enhanced CSO notification procedures (discussed above) the City will post additional CSO signage at the following public locations within the City's municipal jurisdiction: public access points, including boat ramps, bridges, parks, fishing spots, school yards, greenways and parkways, or any potentially affected waters most likely to provide public access. Additionally, records are kept of all CSO sign locations, dates the signs were erected, and the name and address of all public and private property owners that provide public access to affected waterways advertising the availability of CSO signage.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #8 (Public Notification).
   CHANGES FOR 2007: None planned
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Completion of installation.

7. WATER RESOURCE EDUCATION: As discussed in previous Annual reports, the City is a major funding partner in the Allen County Partnership for Water Quality (ACPWQ), a water resource education partnership between the City, the City of New Haven and Allen County. This partnership and its Water Resource Education Specialist is tasked with helping the public become more aware of water resources issues involving storm water, septic tanks, CSOs, SSOs, agricultural run-off, etc. In the past year, the ACPWQ has interacted with residents through: neighborhood association meetings; classroom lessons; conference presentations; booths at the Three Rivers Festival, Earth Day events, Sol Fest and Allen County 4-H Fair. A new Water Resource Education Specialist started work in February 2006. The ACPWQ produced and distributed brochures on "Stormwater Pollution – A Reference Guide for Homeowners" and "Household Hazardous Waste." These were distributed

through the Partnership for Water Quality website at www.acwater.org, at the Partnership booth at the Three Rivers Festival, Allen County Fair and Black Expo and in Fort Wayne utility and public works offices. Fort Wayne City Utilities has created power point presentations on Combined Sewers, Drinking Water quality and Stormwater that can be presented to public by City staff. Each presentation has an accompanying brochure and table top display. Through the Board meetings of the Partnership for Water Quality, Fort Wayne coordinated its public education programs with those of other entities in Allen County including the Allen County Surveyor's Office, City of New Haven, St. Joseph River Watershed Initiative, Maumee River Basin Commission, Allen County Department of Health and Allen County Soil and Water Conservation District. The Partnership for Water Quality held one Project WET teacher training workshops involving a total of 16 teachers in February 2006. Using an EPA grant, the Partnership has created eight Project WET lesson plan kits that may be checked out for use by teachers and has created a library of water resource education material including books, CDs, DVDs and videos. The Partnership also participated in a professional educators' workshop and a home school expo in Fort Wayne to let teachers know about Project WET and the resources that are available through the Partnership.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #8 (Public Notification).
CHANGES FOR 2007: Produce and distribute two additional brochures on different topics.
LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
PERFORMANCE MEASURE: The number of residents reached with education and outreach. Project WET reached 16 teachers. Over 3,200 people were reached through festival and fair demonstrations.

STRATEGY 2: CONTROL WHAT ENTERS THE COLLECTION & WASTEWATER TREATMENT SYSTEM

Ongoing programs established under the following enumerated activities, as restated below, adequately address all of the objectives of this strategy.

- Reduce the amount of public-produced pollutants that enter the system;
- Reduce the amount of industrial-produced pollutants that enter the system; and
- Reduce the rate at which stormwater enters the system.

1. THE CATCH BASIN & INLET CLEANING PROGRAM: The Catch Basin and Inlet cleaning program addresses approximately 15,551 known structures in the collections system. All structures are scheduled to be cleaned within a 2 ½ year period. City Water Pollution Control Maintenance cleaned 5,987 catch basin and inlet structures. Much of this work is accomplished through the use of the City's two combination vacuum trucks.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #6 (Control of Solid & Floatable Materials).
CHANGES FOR 2007: None planned
LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
PERFORMANCE MEASURE: Number of structures cleaned per year: 5,987 structures were cleaned and 3,517.76 tons of material was removed in 2006.

2. THE TOX-AWAY PROGRAM: Tox-Away Day gives county residents the opportunity to discard various toxic products in an environmentally safe way. Allen County provides the data for this program. Information for 2006 is not yet available from the organization. This Allen County program met the 2005-programming goal of one weekend. A total of 1,015 household or 801 automobiles participated in Tox-Away Day. A total of 36,515 pounds of hazardous material was collected.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #7 (Pollution Prevention).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Documentation of event. Records are on file.

3. HAZARDOUS SPILL RESPONSE: The Allen County Emergency Management Agency ("ACEMA") met 2006 programming goals of protecting the public from harmful spills. Most incidents were again related to transportation leaks/traffic accidents and occurrences at fixed facilities. The Hazmat team was dispatched 5 times in 2006 to address spills that may have been previously characterized as Level II/III spills. A total of 1201 incidents occurred where one or more response units responded to a Hazmat type call (such may have been previously characterized as Level I spills). The ACEMA no longer classifies incidents as a Level I, II or III.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #7 (Pollution Prevention).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: The protection of public from harmful spills. The ACEMA responded to 1201 hazmat incidents in 2006.

4. INDUSTRIAL PRETREATMENT PROGRAM: Thirty-four Significant Industrial Users, 18 Contract Customers and 10 Non-Major dischargers are monitored from strategic sampling points at least once per quarter. Quarterly and annual compliance reports are submitted to USEPA and IDEM as required.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #3 (Pretreatment Program Review).

CHANGES FOR 2007: None planned.
LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
PERFORMANCE MEASURE: Completion of quarterly sampling for all program users. All sampling was completed as scheduled for 2006.

5. STREET SWEEPING: Street sweeping reduces the amount of debris entering combined and storm sewers by collecting it prior to entry. The goal of citywide and weekly downtown sweeping was met in 2006.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #6 (Control of Solid & Floatable Materials).
   CHANGES FOR 2007: None planned
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Swept Citywide and downtown in 2006 for a total of 14,696 curb miles and 2,400 tons of material was collected. The sidewalk dirt is swept into the street and the sweeper collects it.

6. RECYCLING: This program provides biweekly curbside recycling collection to over 78,790 residential homes (This includes the annexation of Aboite in January 2006). The program is open to all residential customers living in dwellings of up to 4 units (there is no added cost to participate in the program).

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #7 (Pollution Prevention).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURES: Documentation of program. This City activity met its 2006 goal by collecting 10,081 tons of material.

7. INFLOW REMOVAL: The Wastewater Facilities Master Plan (1995) identified areas of cost effective inflow removal. Several projects continue to be underway to remove inflow. A total of 450 manhole inspections were completed as part of contracts for sewer televising.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #2 (Maximum storage).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Number of manholes inspected (450) and a list of rehabilitation projects (on file).

8. PILOT DOWNSPOUT DISCONNECTION PROGRAM: The data from this pilot program proved inconclusive and the program has been discontinued. However, a "how to" video was produced by the City which describes and demonstrates how to disconnect downspouts. This video is available from the City's Public Information

Office. Also, a pamphlet was developed on the disconnection of downspouts. A video was developed from the program and is used when speaking about CSO issues at neighborhood meetings.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #2 (Maximize storage).
CHANGES FOR 2007: None planned.
LEVEL OF IMPLEMENTATION: Completed.
PERFORMANCE MEASURE: Report and video on pilot program were completed.

STRATEGY 3: MAINTAIN THE COLLECTION AND WASTEWATER SYSTEM TO MINIMIZE SERVICE DISRUPTIONS

Ongoing programs established under the following enumerated activities, as restated below, adequately address all of the objectives for this strategy:

- Keep the sewer system clean
- Keep the mechanical facilities operating properly; and
- Keep the sewers operating properly and structurally sound.

1. SEWER EVALUATION PROGRAM (SEP): The long-term goal of the SEP is to evaluate all the combined and sanitary sewers within 12 years. The City has just completed the program's tenth year. The Sewer Evaluation Program went through major changes in 2006. Any sanitary or combined sewer pipe that was 8" – 15" was proofed by in-house crews. Pipe that was 16" or larger was televised by outside contractors. This evaluation program was spread over a 12 year cycle. In mid-2006, the City decided to bring all televising in-house for 2007 and to emphasize televising, rather than proofing, for SEP evaluations. The City has also purchased a new televising truck and a new combination jet/vac truck so all this work can be done in-house.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & regular maintenance).
   CHANGES FOR 2007: The City will do all televising in-house.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Linear feet assessed. A total of 72,050 LF were proofed and 78,028 LF were televised in 2006.

2. ROOT REMOVAL PROGRAM: This activity includes areas of known root problems and is scheduled for removal. The amount of linear feet cleaned of roots in 2006 was 133,607. The growth of this program comes from the SEP. Mechanical saws and chemical foam are the methods used to de-root smaller diameter pipe. Larger diameter pipe requires the use of equipment that the City does not have, therefore this type of work is contracted out as needed.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & regular maintenance).
CHANGES FOR 2007: None planned.
LEVEL OF IMPLEMENTATION: Detailed documentation for cleaning on file.
PERFORMANCE MEASURE: Linear feet of roots removed: 133,607 LF cleaned in 2006.

3. RESTAURANT DISCHARGE SAMPLING: A total of 263 compliance checks for oil and grease were conducted in 2006. To perhaps enhance the benefits of this program, the 2006 compliance checks were focused to occur on weekends when restaurant activity believed to be at its peak. Five new samplers have been purchased to allow a greater volume of weekend compliance checks in the future.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & regular maintenance).
   CHANGES FOR 2007: Program goal for 2007 is 500 sampling events
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Completion of scheduled inspections.

4. DEGREASING PROGRAM: This activity includes areas of known grease build-up and includes schedules for removal. Approximately 520,710 linear feet of sewer lines are cleaned by hydraulic jetting or a chemical enzyme repeatedly during the year on cycles ranging from daily dripping on enzymes to seven through 180 hydraulic jetting cycles. In 2005, Fort Wayne began using enzymes to assist in the fight against grease build-up inside the collection system. Using enzymes has enabled Fort Wayne to reduce the amount of hydraulic flushing enabling these crews to be more productive in other areas.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation and regular maintenance).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Linear feet cleaned (520,710 LF) and the required frequency of cleaning to maintain desired level of service. Over the last several years a decrease in frequency has been recorded while maintaining the same level of service.

5. SEWER REPAIR & REPLACEMENT: Sewer pipes and structures found to be in need of repair and replacement are prioritized for work and completed. This is done through the SEP and the tracking of defects (using software) found in televising. There were 3 projects designed and 3 projects bid in 2006. In 2006, a total of 4 catch basins were replaced with precast concrete. There were also 20 catch basins and or inlets that were sealed to prevent further decay and help prevent infiltration. Street

Engineering also replaces catch basins and inlets annually by inspecting these structures and replacing the ones that are in poor shape before street improvement projects begin. There were 40,800 LF of sewer repair bid in 2006. No work was done on the force mains in 2006.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation and regular maintenance).
CHANGES FOR 2007: The City anticipates that three projects will be designed and three projects will be bid in 2007. This includes a total of 50,000 (+/-) LF of sewer rehabilitated.
LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
PERFORMANCE MEASURE: Number of repairs completed and underway. Approximately 40,800 LF of sewer was rehabilitated in 2006.

6. CSO OUTFALL & FLAPGATE INSPECTION: The City conducts CSO inspections in accordance with the Order according to an agreed-upon schedule.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #5 (Prohibition of dry weather overflows).
   CHANGES FOR 2007: None planned
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Completion of all inspections required by the Order. All required inspections were accomplished in 2006 (each outfall was inspected at least 260 times in 2006 for a total of 11,960 inspections).

7. CSO OUTFALL & FLAPGATE REPAIR: Repairs are made in response to problems discovered during routine inspections.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & regular maintenance).
   CHANGES FOR 2007: CSO outfall and flapgate repairs will be done based on need.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Number of reported dry-weather discharges: 2 in 2006 (2 in 2005). Number of flapgate repairs: zero in 2006 (zero in 2005).

8. REGULATOR INSPECTIONS: Regulator inspections have historically been divided into two groups, Mechanical (complex mechanical parts) and Passive (few or no moving parts). The City has 54 regulators which are inspected week days and after wet weather events by the City's CSO inspectors. The mechanical aspects of the regulators are scheduled for preventative maintenance once every 6-weeks by the City's Water Pollution Control Plant Maintenance Department.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #5 (Prohibition of dry weather overflows).
CHANGES FOR 2007: The daily CSO outfall inspections (described above) are to include inspections of regulators. The City is evaluating the need and possible frequency of additional inspections.
LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
PERFORMANCE MEASURE: Number of inspections accomplished. Preventative maintenance was completed on the 33 mechanical regulators 7 times each in 2006. The combined 54 passive (non-mechanical) and mechanical regulators were inspected approximately 260 times in 2006.

9. REGULATOR MAINTENANCE: The WPCP maintenance route crew utilizes three mechanics and electrical support. The maintenance route crew is responsible for inspections and maintenance of all mechanical regulators. The frequency of preventative maintenance will be six-week rotations. They also respond immediately to any and all reported discharges or plugging. They are also responsible for all sanitary stations and flood control pumping stations.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #5 (Prohibition of dry weather overflows)
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Accomplishment of all scheduled and necessary maintenance inspections and work orders. In 2006 there were 363 preventative work orders completed, one minor repair and zero emergency repairs.

10. LIFT STATION INSPECTION/ROUTINE MAINTENANCE: Sanitary lift stations are inspected visually a minimum of twice a week. Telemetry is used to monitor on a 24-hour basis by operations at the Water Pollution Control Plant. Process information (pump on, pump off, failed pump, high wet well, power outage) is displayed to the plant operator by telemetry (SCADA) into a software program called Intellutions and is stored historically by another software program called I Historian. These applications assist both operations and maintenance in determining if anomaly needs to be addressed immediately or scheduled for a repair. Daily work includes preventative maintenance activities such as: mowing, painting, cleaning, greasing and oil level checks, pump impellor condition, radio telemetry signal checks and generator inspections. Wet well preventative maintenance include, level control cleaning, removing any built up grease by use of vacuum truck and removing any foreign floating objects that could harm pumps or plug lines.

    ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & regular maintenance).
    CHANGES FOR 2007: None planned.
    LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.

PERFORMANCE MEASURE: Number of preventative maintenance work orders completed in 2006: 994.

11. LIFT STATION MAJOR MAINTENANCE: In 2006 there were no major repairs. The WPC Plant Maintenance route crew and electrical support logged 448 minor repairs.

    ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & regular maintenance).
    CHANGES FOR 2007: Installing upgraded pump control monitoring devices in six stations called Multismart controller. Two stations (Flaugh Ditch, Lawton) will be renovated with new pumps and controls.
    LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
    PERFORMANCE MEASURE: Number of emergency repairs: Eight in 1998, one in 1999, zero in 2000, zero in 2001, three in 2002, two in 2003, two in 2004, zero in 2005 and zero in 2006.

12. PROACTIVE WPCP MAINTENANCE/REPAIR: The Water Pollution Control Plant Maintenance Department dedicates two full time mechanics along with a percentage of the electrical department's time to preventative maintenance tasks. In 2006, 46% of recorded work orders were devoted to preventative maintenance and 13% were dedicated to plant improvements for a combined total of 59% to proactive maintenance activities. Maintenance staff is continuing efforts in inventory and asset control activities. Maintenance continues to work with operations departments in 2006 Total Productive Maintenance (TPM) to increase equipment effectiveness in the present and future. TPM was developed by the City Utility Director to better implement a teamwork philosophy of Operations and Maintenance departments working together to increase the productivity of projects. New construction of our future primaries is off to a great start in 2006. Gaseous Chlorine is no longer used for disinfection, sodium hypochlorite is being used in its place.

    ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & maintenance).
    CHANGES FOR 2007: None planned.
    LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
    PERFORMANCE MEASURE: In 2006 there were 18,782 preventative maintenance work orders completed. There were no emergency repairs in 2006. This resulted in a decrease of downtime.

13. PROACTIVE WPCP EQUIPMENT REPLACEMENT: A long-term schedule for the repair and replacement of WPCP equipment was implemented in 2000 and is managed by the City's Capital Task Force.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & regular maintenance).
CHANGES FOR 2007: Aeration Blower upgrades and renovations, plant water pump project, Motor Control Center replacements, Dechlor Facility completion and start up, new Hypochlorite Facility startup.
LEVEL OF IMPLEMENTATION: The primary project was given notice to proceed and construction will take place over the next three years. The City's Capital Task Force is continuing to look at the plant's needs on a quarterly basis.
PERFORMANCE MEASURE: Whether there is an increase or decrease (no change in 2006) in downtime of process equipment.

14. SIPHON CLEANING PROGRAM: This program includes scheduled inspections of the upstream and downstream structures and are cleaned when needed.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #1 (Proper operation & regular maintenance).
CHANGES FOR 2007: None planned.
LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
PERFORMANCE MEASURE: Number of blockages in the barrels of the siphons: two blockages in 2006.

STRATEGY 4: OPERATE THE COLLECTION & WASTEWATER TREATMENT SYSTEM SO THAT THE MAXIMUM CONVEYANCE AND TREATMENT CAPABILITIES ARE UTILIZED

Ongoing programs established under the following enumerated activities, as restated below, adequately address all the objectives of this strategy:

- Maximize the rate of flow to, and through, the WPCP during and after wet weather events;
- Utilize the existing collection system's storage and capacity to maximize flows to the WPCP and minimize CSO discharge volume; and
- Maximize the use and treatment capabilities of the stormwater ponds.

1. STRESS TESTING: The testing was completed in 1996 and a report was completed in 1997. The report is being used to facilitate the development of the LTCP.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #4 (Maximizing flow to treatment plant for treatment).
CHANGES FOR 2007: Planning and possible operational changes based on results.
LEVEL OF IMPLEMENTATION: Completed.
PERFORMANCE MEASURE: Completion of report and use in LTCP development.

2. XP-SWMM MODELING: The interceptor and sub-basin portions of the model were completed in May 1998.

ADDRESSES MINIMUM CONTROL NUMBER: NMC #2 (Maximization of Storage in the Collection System) and NMC #4 (Maximizing Flow to Treatment Plant for Treatment).
CHANGES FOR 2007: None planned.
LEVEL OF IMPLEMENTATION: The model was approved for LTCP alternative analysis.
PERFORMANCE MEASURE: Report on equalization capabilities.

3. REGULATOR & WEIR ADJUSTMENTS: All Mechanical Regulators are regularly inspected. The City had a study done to assess the potential of using trunk sewers for in-system storage. Several potential locations for in-system storage were identified in the study. In several instances, the study recommends, simple weir adjustments which are being implemented as soon as the work can be scheduled. The study has been completed. The City has raised four weirs as a result of the study.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #2 (Maximize storage).
   CHANGES FOR 2007: No changes are scheduled for 2007. The system will continued to be monitored and changes will be made if appropriate.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Improvement of pipe storage capacity.

4. CSO POND OPERATIONS: The CSO Ponds are operated to collect and detain excess combined sewage flows.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #2 (Maximum storage).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Effective use of the CSO Ponds.

STRATEGY 5: DETERMINE IF APPLIED EFFORTS ACHIEVE THE CSSOP'S GOAL.

Ongoing programs established under the following enumerated activities, as restated below, adequately address all objectives of this strategy:

- Know the water quality of the St. Joseph River, St. Mary's River, and Maumee River as coming into and leaving Fort Wayne's Combined Sewer Area.
- If detrimental impacts continue to be observed: know the impacts on the receiving stream's water quality as a result of CSO occurrences during and following wet-weather events.

The above objectives, which implement this strategy, address the 9th of the NMCs. The ninth NMC is, in essence, a transitional activity or phase between the NMCs and the LTCP. The activities described below to meet these objectives thus serve dual purposes: to meet the monitoring requirements of the ninth NMC and to provide foundational water quality data and stream modeling capabilities needed for evaluation of

the effectiveness of control alternatives during development of the LTCP. The results of these activities are included in the CSO Long Term Control Plan Technical Component, which was submitted to USEPA and IDEM in December 1999 and in the final draft of the LTCP submitted by the City to USEPA and IDEM on July 31, 2001.

1. STREAM QUALITY SURVEY: This was a dry-weather water quality survey of the Maumee River, the St. Mary's River, and the St. Joseph River. Data was collected to complete the CE-Qual-Riv1 dry weather model.

   ADDRESSES MINIMUM CONTROL NUMBER: This activity addresses NMC #9 (Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Complete
   PERFORMANCE MEASURE: Use of data to facilitate the identification of baseline water quality.

2. RIVER MONITORING PROGRAM: The river monitoring program has been a program of the City for many years and, in prior Annual Reports, was described as part of the Stream Quality Survey. The program consists of weekly sampling during the recreational season from April 1st to October 31st (approximately 31 weeks) and monthly sampling during the winter months. Samples are collected from two sites on each of the three rivers in coordination with IDEM.

   ADDRESSES MINIMUM CONTROL NUMBER: NMC #9 (Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls).
   CHANGES FOR 2007: None planned.
   LEVEL OF IMPLEMENTATION: Fully implemented as an ongoing program.
   PERFORMANCE MEASURE: Weekly river sampling during the recreation season and monthly sampling during the winter months. All sampling was completed as scheduled for 2006.

STRATEGY 6: DETERMINE IF ADDITIONAL OR REVISED EFFORTS ARE NEEDED TO ACHIEVE THE ESTABLISHED GOAL.

The City's ongoing activities adequately address this strategy and have facilitated the development of the LTCP and attainment of CSSOP technology based objectives. The scope of additional control efforts, based on water quality impacts, will be determined through the long-term control planning process and the previously discussed CSSOP amendment. The CSO Impact Characterization will assist the City in determining which activities are effective and what new efforts are necessary to further meet the goals of the CSSOP as well as the LTCP. Always intended to be a dynamic document, the City is currently working to amend the CSSOP.

COMBINED SEWER CAPACITY IMPROVEMENT PROGRAM

The City continues to implement its Combined Sewer Capacity Improvements Program ("CSCIP"). This program addresses the public's request for relief from basement and street back-ups and helps to reduce CSOs. This program manages the development, design, and construction or maintenance plans designed to increase capacity or correct problems in the combined sewer sub-basins based on recommendations from the STF. Combined sewer capacity in each sub-basin will be upgraded to a 25-year storm or higher. The program is based on achieving objectives within 14 years. The program has been in place for 7 years. The utility will be seeking a 3rd rate increase to fund the program in 2007. Concurrent development of this program and the Combined Sewer Overflow Program included several elements of the LTCP such as: Characterization, Monitoring and Modeling (see Strategies 1 & 5); Public Participation (see Strategy 1); Evaluation of Alternatives; and cost/performance considerations. City Utilities recognizes the relationship between the CSCIP and the CSO Program, in particular the development of the LTCP, and has set a priority on maintaining close coordination between the two programs.

If you have any questions regarding this report, the City's CSO control efforts generally or the CSCIP, please contact me to discuss at your convenience.

The undersigned, being the Director of Public Works and Utilities for the City of Fort Wayne, hereby certifies that all the above and foregoing statements are true and accurate to the best of my knowledge and belief. Should I find, at any time following submission of this document that any portion of this letter is false or incorrect, I agree to promptly notify both USEPA Region 5 and IDEM of said discrepancy.

UTILITY ADMINISTRATION

Gregory A. Meszaros
Director of Public Works and Utilities

cc: Attachment: Dry weather overflow list

Mr. Mark Stanifer, IDEM (via certified mail)
Mr. Terry Ressler, IDEM
Mr. Graham Richard, Mayor
Members of the Common Council
Members of the Board of Public Works
Members of the Sewer Advisory Group
Ms. Cecilia Case, Counsel to City Utilities
Mr. Mark Becker, Deputy Mayor
Mr. Mark Gensic, Manager of Planning & Design Services
Ms. Brandi Wallace, Water Quality Regulatory Compliance Specialist
Ms. Mary Jane Slaton, Program Manager of Water Resources
Mr. Mike Thornson, Stormwater Engineering Program Manager
Mr. Daniel Deeb, Schiff Hardin LLP
Mr. Larry Kane, Bingham McHale, LLP
Ms. Cheryl Cronin, Superintendent of WPC Plant
Mr. Jeff Morris, Superintendent of WPC Maintenance/Stormwater Maintenance
Mr. Timothy A. Manges, City Attorney

ATTACHMENT 1
2006 DWO STATUS REPORT

The following two dry weather events were encountered in 2006.

STRUCTURE #	DATE	PROBLEM/ACTION TAKEN
K15-009	10/10/06	This site is monitored and visually checked daily as required by the Order. The overflow started after the 10/8/06 daily visual inspection due to a float being stuck. A crew repaired the float so that the gate would fully open and not restrict the flow.
O19-041	9/14/06	This manhole became plugged due to a large amount of grease in the line. The City cleared the blockage and added the line to its 6-week cleaning program.

CH2\ 1715545.1

2.0 MAXIMIZATION OF STORAGE IN THE COLLECTION SYSTEM

2.1 OVERVIEW

The 2nd NMC is titled "Maximization of Storage in the Collection system". EPA's NMC Guidance explains that this NMC means "making relatively simple modifications to the CSS to enable the system itself to store wet weather flows." .

CSOs can be reduced by eliminating bottlenecks and obstructions in the collection system that cause upstream overflows before the WPCP is at capacity. CSOs can also be reduced by maximizing storage in the collection system. The City's WPCP was designed to treat sewage at a peak maximum rate of approximately 60 million gallons per day (MGD). Were it possible (it is not) for the WPCP to treat at a constant rate of 60 MGD for 24 hours a day, 365 days a year, the WPCP could theoretically treat approximately 21,900 million gallons (MG) of flow per year.

The City's collection system has delivered as average of approximately 43 MGD of sewage to the WPCP. Given the WPCP's design peak capacity of 60 MGD, the WPCP would, theoretically, treat up to an average of 17 MGD (60 MGD – 43 MGD) of wet weather runoff each day, or 6,205 MG of wet weather runoff each year.

Unfortunately, neither sewage nor wet weather runoff are produced at a constant rate. The City's challenge during wet weather events is to utilize as much of the WPCP capacity as possible. One important means to help the City meet this challenge is the storage of flows when flow to the WPCP is greater than its capacity and by releasing stored flow to the WPCP when flow to the WPCP is less than its capacity.

This Chapter will describe how the major components of the collection system operate, provide information on bottlenecks and obstructions, and analyze the feasibility of utilizing storage in the collection system to store peak wet weather flows. Other measures associated with NMC No. 2, including collection system inspection, tide gate maintenance and repair and removal of obstructions to flow are addressed in Chapter 1.

2.2 OPERATION OF THE COLLECTION SYSTEM

Originally trunk sewers, highlighted in orange in Exhibit B-1, were built to transport the combined sewage from combined sewer subbasins directly to receiving waters. The boundaries of the combined sewer subbasins are outlined in yellow on Exhibit B-1.

When the WPCP was constructed a series of interceptors was built to transport dry weather flow. Exhibit B-1 shows the major interceptor sewers. The interceptors (or section of interceptors) that transport combined sewage to the WPCP are highlighted in green.

Regulators were constructed to convey combined sewage from subbasin trunk sewers to the interceptor sewers. The regulators were also constructed to control the volume of combined sewage that flows to the interceptor system. This was done to protect the biological processes at the WPCP. Regulators are shown on the Exhibit B-1 as yellow dots. They are labeled with the City's 6-digit structure identification number.

During some wet weather events, interceptor capacity can be exceeded. Flows of combined sewage that does not get into an interceptor are routed to a receiving water through a permitted CSO outfall. The City's CSO outfalls are indicated by a large black dot on Exhibit B-1 and labeled with the City's NPDES Permit number for that location.

Exhibit B-1 shows the City's sewer system as it was in 1940. Exhibit B-2 shows the same system in 2005. Note that the 2005 system remains comprised of combined sewer subbasins, subbasin trunk sewers, regulators, interceptor sewers and the WPCP.

2.3 ELIMINATION OF BOTTLENECKS AND OBSTRUCTIONS

Perhaps the City's foremost means to identify and eliminate bottlenecks within its CSS are its inspection and maintenance programs (see Chapter 1). CSO outfalls and regulators are inspected daily and also on weekends in connection with any wet weather events. These inspections, in addition to other scheduled inspections, proactive preventative maintenance, and other activities enable to City to identify system constraints (e.g. flow obstructions) and promptly effect solutions.

Ineffective pump stations are a common collection system bottleneck in many systems. All of the City's interceptors that carry combined sewage flow by gravity to the WPCP - there are no pump stations in the interceptor system. All of the combined sewer subbasins are served by gravity trunk sewers. No combined sewage is pumped to the regulators.

Combined sewage is pumped from a regulator to an interceptor in only one subbasin (O10-101). The pumps in this subbasin are sized to pump the maximum amount of combined sewage (more than peak dry weather flows) that the downstream interceptor can handle. These pumps have been provided with an alternate power supply (2^{nd} electrical feed) to mitigate against an overflow being caused by a power failure. In addition, comminutors have been installed to improve reliability and prevent damage to the pumps from debris.

Another common collection system bottlenecks are undersized pipes – pipes which flow to smaller downstream pipes. Pipe capacities for both the interceptor sewers and trunk sewers were analyzed during the development of the City's electronic sewer model. All trunk sewers increase in size and capacity as they approach regulators or interceptors. All interceptor sewers increase in size and capacity as they approach the WPCP.

Finally, regulators are engineered bottlenecks in many collection systems. Regulators are designed to impose a maximum limit on the flow to the WPCP. The maximum limitation is created by the size of the opening to the interceptor and by gates that reduce the opening size. All but five of the City's mechanical regulator gates are chained fully open to allow maximum flow to the interceptor (in allowing the maximum flow, the potential for CSOs is not significantly increased.) Those that are not chained fully open are set to operate at maximum capacity. This maximizes the flow that can get into the interceptors without rebuilding the regulator. The City recognizes that maximizing flow to the interceptor reduces the potential for inline storage in the subbasins but at the same time (as described in Section 2.4.2 below) acknowledges that many trunk sewers are too shallow to present additional storage capacity without creating a greater risk of basement backups and flooding. A CSS modeling study was performed as part of Section 2.4 to evaluate the potential of partially closing some of regulator gates. Results are located in Exhibit B-3.

2.4 UTILIZATION OF COLLECTION SYSTEM STORAGE

The first step in maximizing collection system storage capacity is identifying the locations of potential storage. Storage can be found on the ground above the collection system, in collection pipes, and in collection system tanks or ponds.

The second step in maximizing collection system storage capacity is identifying and analyzing possible modifications that increase the utilization of in-system storage. The analysis considers the amount of storage available, the risk of upstream (street, basement) flooding, and the increase in O&M requirements should be analyzed.

2.4.1 Ground Above the Collection System

One of the steps in developing projects for the City's Combined Sewer System Capacity Improvement Program (CSSCIP) has been to identify potential solutions to capacity problems through public brainstorming workshops and the City's Sewer Advisory Group. One option evaluated at these workshops for solutions to capacity issues in each basin is utilizing public streets and/or parking areas for temporary wet weather storage. More than half of the entire combined sewer subbasin area has been through this process. To date, no locations have been identified where street storage has presented an acceptable community solution. Each

subbasin studied has a final report summarizing the findings of the evaluation.

2.4.2 Collection Pipes

The City's interceptor sewers have the capacity to deliver more than 120 million gallons of flow per day to its WPCP. Average daily flow to the WPCP is in the range of 40 to 48 MGD. This suggests that there is ample available storage in the interceptor sewers. This storage is currently used automatically.

The combined sewer subbasin trunk sewers are another potential location for storage of peak flows. The trunk sewers in the 2005 version of the City's sewer system are highlighted on Exhibit B-2 in orange. Trunk sewers, however, are often not as deep as interceptor sewers. In-line storage in truck sewers, consequently, represents a greater potential to cause flooding in basements, yards, and streets. Nonetheless, the City conducted a study done to assess the potential of using trunk sewers for in-system storage. A copy of the study can be found at Exhibit B-3. Several potential locations for in-system storage were identified in the study. In several instances, the study recommended weir adjustments which have since been implemented as noted in Exhibit B-6. Many other recommendations of the study, however, entail significant engineering and high costs well exceeding the scope of an NMC. .

2.4.3 Collection System Tanks and CSO Ponds

Pumps are used at 5 of the City's CSO discharge points to pump the overflow into the receiving waters. General information on these pump stations can be found at Exhibit A-2. If the wet wells associated with these pumps are kept dewatered during dry weather, the wet wells could be used to capture and store small overflows. The volume of each of the five pump station wet wells that could potentially be dewatered back to the interceptor is approximately:

Griswold Pump Station	0.016 MG
Nebraska Pump Station	0.018 MG,
Brown Street Pump Station	0.057 MG
Morton Street CSO Pump Station	0.062 MG
Third Street Pump Station	0.097 MG

The City is working to rehabilitate and replace dewatering pumps in these wet wells to allow use of the wet wells for storage. The dewatering pumps are also being re-routed to pump to interceptor sewers rather that the receiving water. By the end of 2007, four of these five CSO discharge stations will have dewatering pumping systems installed in their wet wells.

Due to the low frequency of discharges at the Griswold station, it will not be effective to install a dewatering pump system in its wet well. Instead, access improvements to the wet well have been performed so that the wet well can be vacuumed out. The installation of these dewatering systems is expected to lower the number of CSO events at these locations, as well as reduce the overflow volume of some of the CSO events. Following completion of this work and observation of the results, the CSS model will be updated to incorporate these dewatering capabilities.

The City's collection system contains 2 large ponds that are currently used to detain combined sewage flows from the Glasglow regulator and Wayne Street Interceptor overflow in excess of WPCP capacity. The ponds are currently without operating facilities to return their combined sewage flows to the WPCP. The City studied how much combined sewage could be returned to the WPCP if appropriate facilities existed in the future. A copy of this study can be found at Exhibit B-4. Conceptual designs for return structures were developed by Donohue & Associates Inc. in 2004. A section of their report showing the design and calculations of the associated costs are shown at Exhibit B-5. The study makes it clear that significant engineering and costs would be required to construct the requisite return facilities. Return facilities, therefore, will not be implemented as an NMC. Through its LTCP, however, the City will be constructing initial improvements in 2008 which will then allow the limited dewatering of flows captured by the ponds to the WPCP. Improvements allowing a higher volume of dewatering will be scheduled as LTCP improvements in connecting with improvements to the WPCP itself.

2.5 TIDE GATE INSPECTIONS

Tide gates that do not seal or operate properly can admit significant volumes of water back into the collection system. The City has a tide gate inspection and maintenance program as described in Exhibit A-1 WPCM O&M Plan. In addition to the maintenance activities at Exhibit A-1, the City works to inspect tide gates in connection with the daily monitoring of the City's CSO monitoring program.

2.6 RETARDING INFLOWS - INFILTRATION & INFLOW REDUCTION

Sewer systems can experience significant impacts from inflow and infiltration (I&I) of rain water and ground water. The 1995 Wastewater Master Plan identified areas where high priority and cost effective inflow removal was recommended. The City has hired a sewer program manager with responsibilities that include I&I reduction in the sewer collection system. This program manager helps monitor the City's goal of performing wet weather inspections on 450

manholes each year, as well as coordinating flow monitoring in areas where I&I impacts are suspected. Manhole rehabilitation and sewer pipe CIPP lining projects are developed by the program manager and used to reduce sources of I&I in the public portion of the sewer collection system. The City also has developed a video and pamphlet on downspout disconnection for property owners to reduce private I&I and has conducted a pilot downspout disconnection project.

2.7 RECORDKEEPING

A project list of weir adjustment activities to date is shown at Exhibit B-6. At the end of each calendar year this list will be updated with a status report describing the progress of the various projects. The progress reports will be kept in Exhibit B-7.

DIRECTORY FOR APPENDIX B
(Items Presented in Order of Appearance in Appendix B)

EXHIBIT B-1

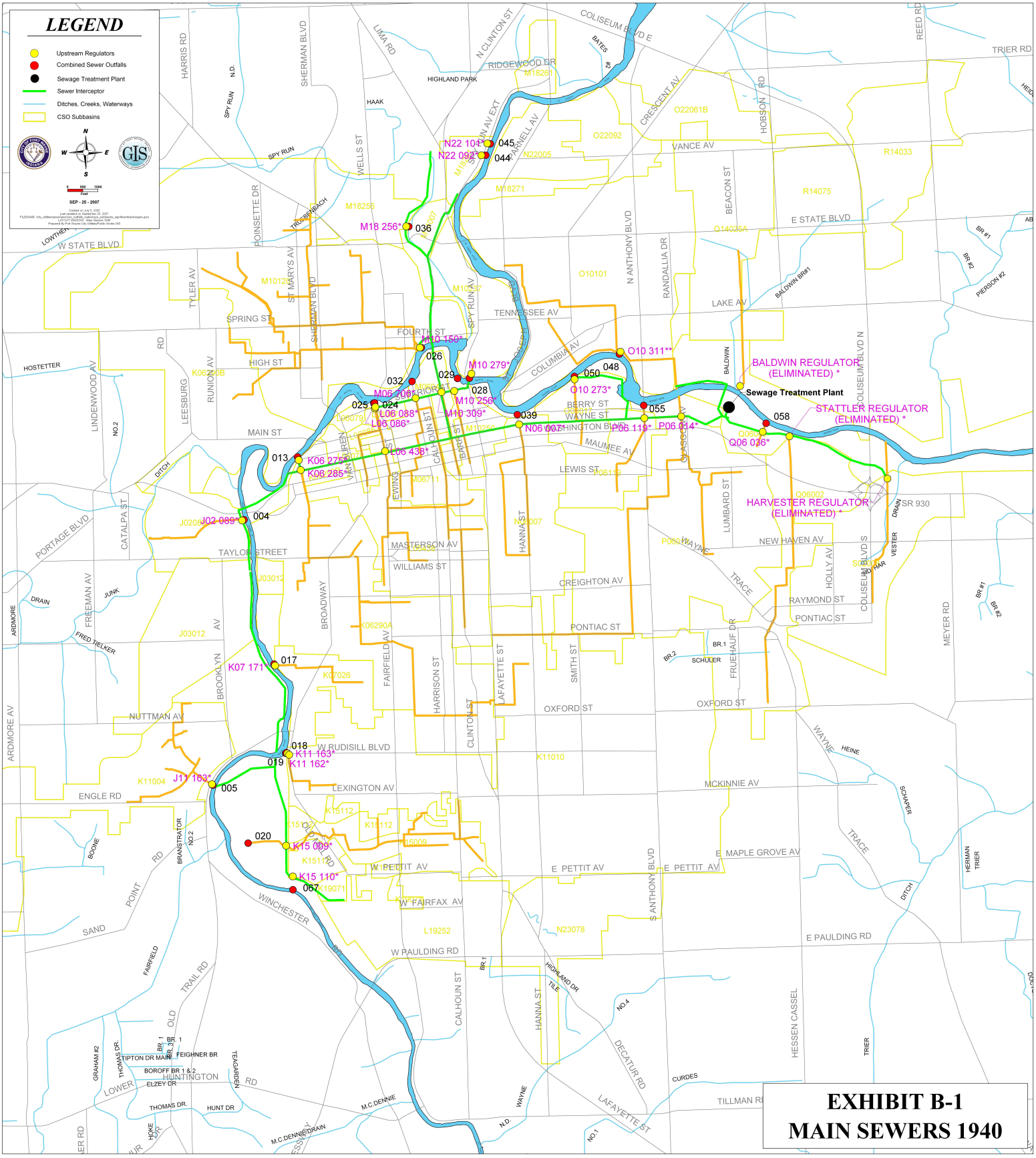
LEGEND
Upstream Regulators
Combined Sewer Outfalls
Sewage Treatment Plant
Sewer Interceptor
Ditches, Creeks, Waterways
CSO Subbasins
SEP - 25 - 2007
BALDWIN REGULATOR (ELIMINATED) *
Sewage Treatment Plant
STATTLER REGULATOR (ELIMINATED) *
HARVESTER REGULATOR (ELIMINATED) *
EXHIBIT B-1
MAIN SEWERS 1940

EXHIBIT B-2

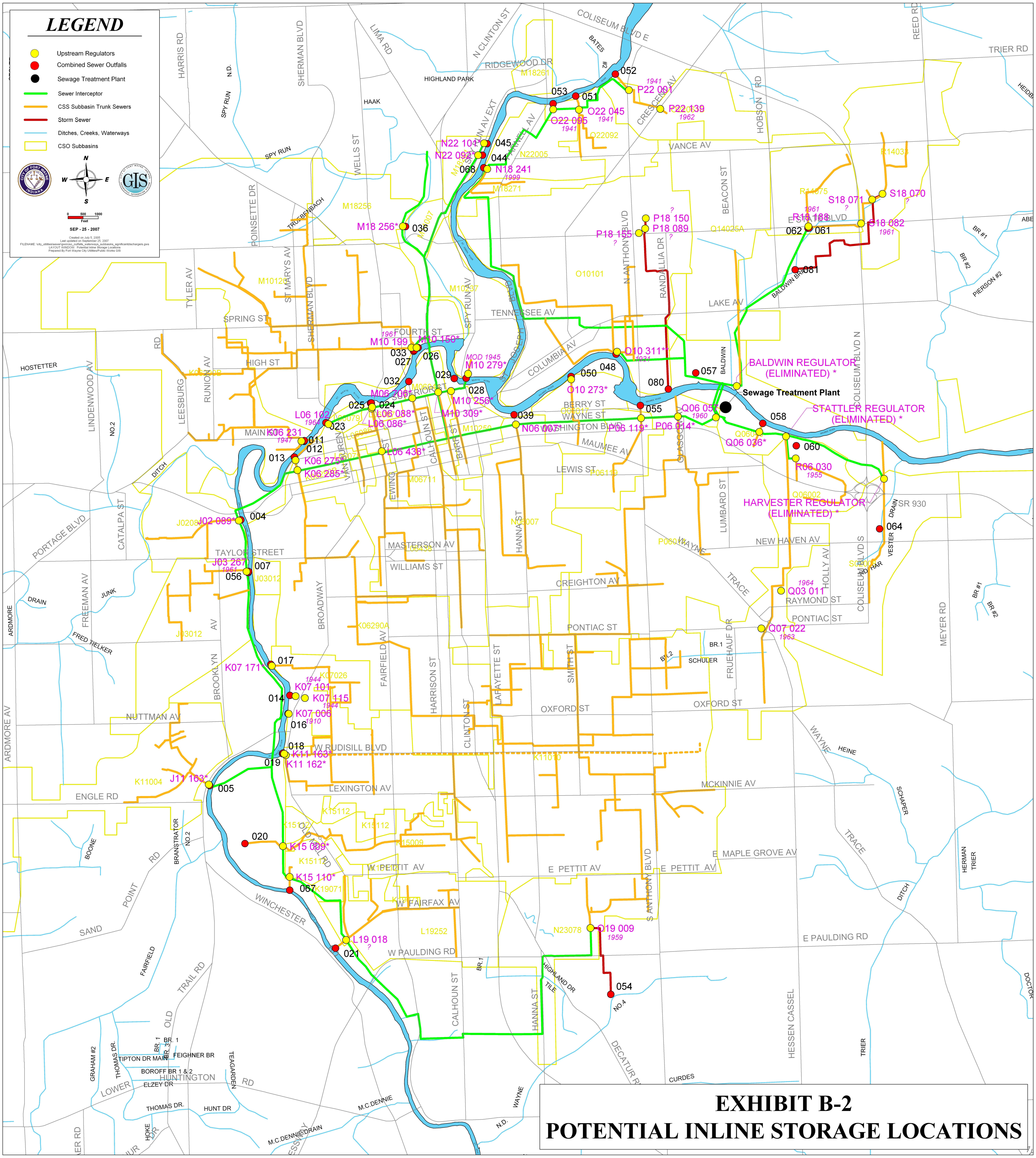

EXHIBIT B-2
POTENTIAL INLINE STORAGE LOCATIONS